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AND

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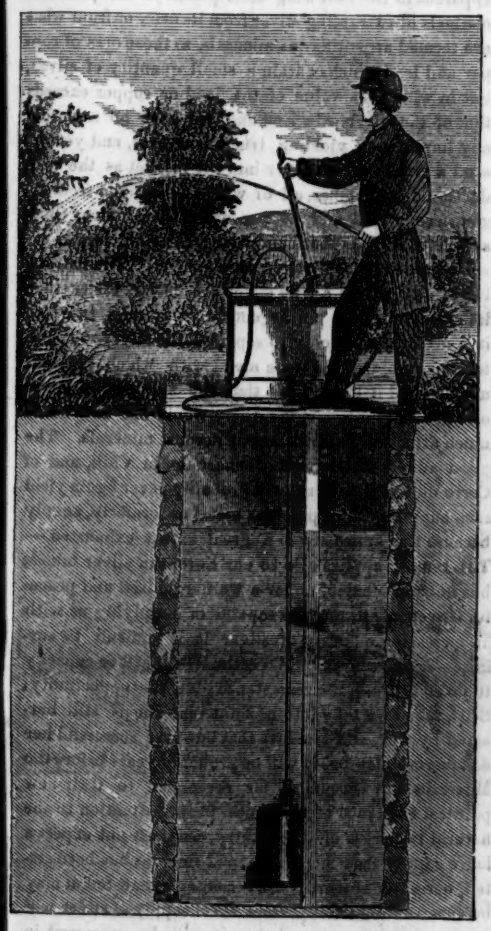

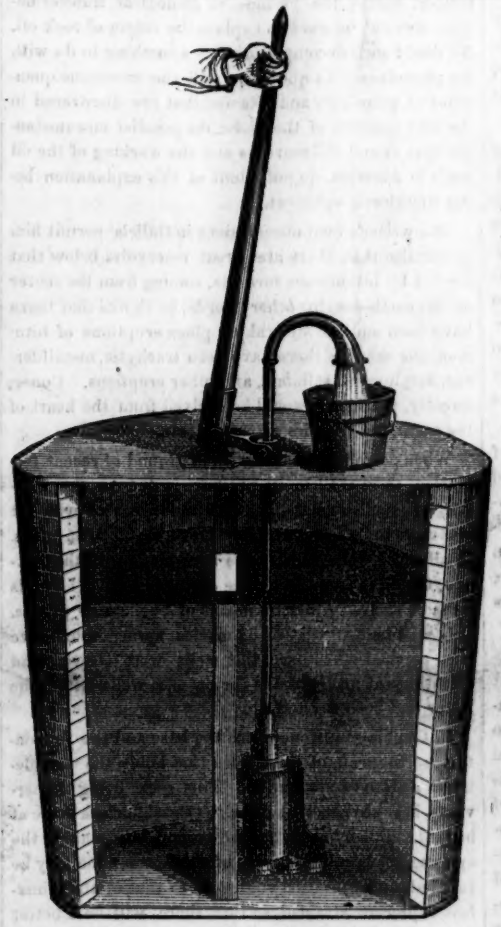

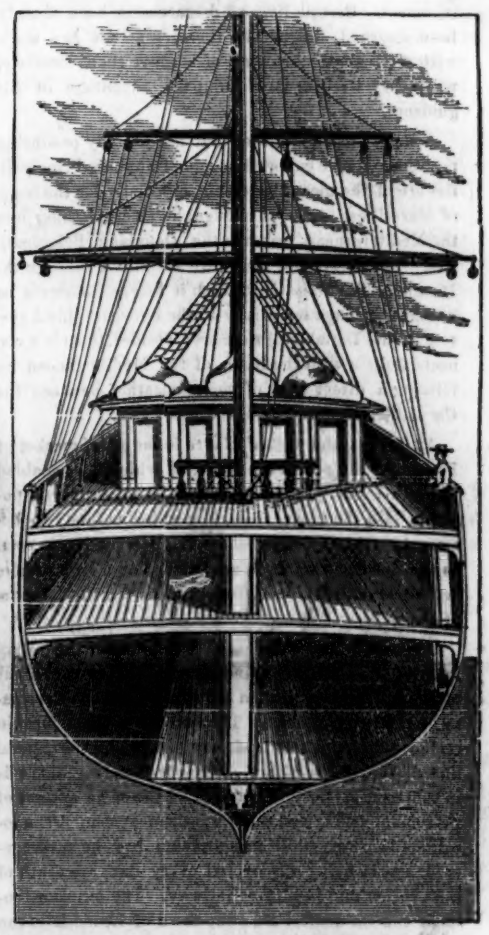

Recommendations of the American Submerged Pump,

OWNED BY THE AMERICAN PUMP MANUFACTURING CO., NEW YORK.

OFFICE, No. 40 DEY STREET.

Office of the American Ship Building Company, New York, Oct. 24, 1864.

I am very much pleased with the economy and simplicity of the American Pump, which I have examined with much interest. IT IS ADMIRABLY ADAPTED FOR SHIP PURPOSES, and from its GREAT POWER would do incalculable service in the event of LEAKAGE. It also works well in pumping, where the cargo consists of grain in bulk, and is free in its action.

AUGUSTUS WALKER, Marine Constructor.

New York, October 26, 1864.

To the American Pump Manufacturing Co.:

I have examined with much interest the working and results of the Double Action Force Pump which you are introducing in the market. For use as a Ship Pump and for Mining purposes, I consider it of great value, the results far exceeding anything of the kind presented to my observation, particularly for its GREAT POWER and SIMPLICITY. It will give me pleasure to recommend its introduction into the Navy. Please deliver as soon as possible the Pumps ordered by me last week, for the Mines of the Middlefield Fire and Building Stone Company of Massachusetts, and oblige, Yours, respectfully, CHARLES B. STUART, Consulting Engineer, U. S. N.

Office of the Neptune Iron Works, New York, February 6, 1865.

To the American Pump Manufacturing Co.:

I was very much impressed in examining the Pump manufactured by your Company. The originality of the design is in good keeping with its simplicity of construction—certainly very desirable qualities in all mechanical combinations. The extensive demand is the best proof of the popularity and favor it is receiving from the public. I have no hesitancy in recommending it to the inspection of those wishing THE BEST PUMP in the country.

CHARLES HUBBARD, Jr.,
Superintendent.

Office of Donald McKay,
East Boston, Aug. 15, 1865.

Alvin Walker, Esq., Sec. American Submerged Pump Co.:

DEAR SIR:—In answer to your request for my opinion of your Patent Submerged Pump, will say, that for simplicity, compactness and durability, it has the appearance of being the BEST mechanical combination I have seen, having fitness combined with its simplicity, making it SUPERIOR to Pumps now generally used for general purposes on land. Also, well suited as a Ship Deck Pump, and, in my opinion, can be arranged to be readily used as a good Bilge Pump for Ships.

Yours truly,
HRMAN WINTER

CAMP PAROLE, ANNAPOLIS, Md., April 22, 1865.

Wm. Numson, Esq., President, Baltimore:

DEAR SIR,—The No. 2 Pump has been properly adjusted, and works to our entire satisfaction. Hoping you may be successful in introducing it to the public, we remain,

Very respectfully, yours, &c.,
JONES & CROWLEY.

(Letter from the President of Board of Common Council, City of Boston)

Boston, August 10, 1865.

A. Walker, Esq., Sec. American Submerged Pump Co.—

Dear Sir—In reply to your request for the results of the trial of one of your Pumps, I will briefly state the purpose for which it was needed, and the complete satisfaction attained. It was desired to clean out a well 42 feet in depth, in which there stood 10 feet of water; I had previously vainly tried several methods, in one of which one large Force Pump and as many buckets as could be used, succeeded in 10 hours in reducing the depth of the water to 9 feet, but beyond that nothing could be gained. I then put in one of your smallest Pumps, which drained the well completely in Six Hours: although the spring which fed the well yielded a stream of water about as large as a man's arm. I need not say that I consider the Pump fully capable of accomplishing what you claim for it. Yours truly, W. B. POW

I can fully endorse the above statement. GE

PETROLEUM.

PETROLEUM IN GALICIA.

BY FELIX FOUCON.

We take the following from the London Art'zan, for November.

It is certain at present that within a period of limited duration, old Europe will no longer be tributary to the new world for illuminating oils extracted from the bosom of the earth. Every day fresh natural springs of petroleum are disovered on the continent of Europe. At the same time the geologists are becoming better acquainted with the nature of the oleiferous ground, and its extent. Certain lines of demarcation have already been observed, and within these, searches are made with a far greater chance of success than formerly, when they were made without the advantage of this guidance.

Amongst those localities that are already producing petroleum fit for exportation, the Danubian Principalities are of the most interesting, especially for the trade of Marseilles. Several navigable rivers, issuing into the Mediterranean, traverse the Danubian Principalities. The Sereth and Pruth are led into it through the Danube. The Dniester, though it leaves Moldavia on its right, belongs essentially to the hydrographical system of the Danubian Provinces; besides, this river connects Galicia with the basin of the Mediterranean by forming a direct line of communication between the Carpathian Mountains and the Black Sea.

At present, the port of Havre is the chief market of France for the petroleum trade, of which it is enabled to make a monopoly by reason of its geographical position. On the other hand, Marseilles is likely to become a considerable market for this commodity, as soon as the European oil wells are worked on a larger scale, and mineral oils shipped from Asia across the Isthmus of Suez.

I have mentioned Galicia in speaking of the petroleum of the Danubian Principalities; this is on account of the intimate connection that exists between the strata of the two countries. The two oil regions form in reality but one, which is clearly marked by the general line of the Carpathians. Properly speaking, there is in this part of Europe but one and the same system of petroleum wells, viz., the Carpathian system. The localities in which Galician petroleum has been discovered, and is being discovered every day, are south of the Cracow and Lemberg Railway. The extreme limits of this oil district are—the town of Lendech in the west, and Drohopyez in the east, Jeslo in the north, and Komanesa in the south. In this direction a new layer, that of Rzepedz has been discovered lately. These are the present boundaries of the region, but they are not likely to remain the same for a year, perhaps not even for a month, as the inhabitants of this country begin to be seized with the oil fever like the Americans, and dig the ground in every direction. Unfortunately, they are destitute of proper guidance, and have no good tools—but their education is being effected gradually. Foreigners are stepping in with machinery and money, and this is all that is needed. The distance of the two points from each other is about 125 miles; from north to south, i. e., in its width, the zone measures about 30 miles. On the whole area of this rectangle (about 3,750 square miles) there are no more than twenty-five oil wells working, most of which have been taken up only in the last three or four years.

From this zone the oil ground strides from Drohobiez towards Moldavia from N. W. to S. E., crossing the Bukowina. We shall soon hear more of this part of the Carpathian oil region; in fact, Professor Coquand, formerly of the faculty of Marseilles, has been visiting these grounds lately.

In observing the distribution of the strata in Galicia and the Bukowina, and their general direction across Moldo-Wallachia, we remain convinced of the existence of a great subterranean fissure, crossing Europe diagonally, somewhere from the mouths of the Oder to the mouths of the Danube. This fissure is clearly marked by the line of the notorious salt strata of Wieliczka, Bochnia, Starasol, Drohobyez, Delatyn, and Solka. The latter place, situated in the Bukowina, at a short distance from the Moldavian frontier, is remarkable, like Drohobycz, because both salt and petroleum are found there. The same is the case with Starasol, in Galicia.

These affinities are rather important, from an industrial point of view. The nature of petroleum has been the subject of many controversies. In America it was at first considered as the product of the distillation of pit coal and bituminous slate. But this supposition was soon abandoned as insufficient, and the decomposition of vegetable tissues, and even gelatinous animal matter, during the periods of geological transformation, was put forward to explain the origin of rock oil. No doubt such decomposition has something to do with the phenomenon in question; still, the enormous quantities of petroleum and bitumen that are discovered in the four quarters of the globe, the peculiar circumstances that attend the searches and the working of the oil wells in America, do not admit of this explanation being considered sufficient.

The writer's own observations in Galicia permit him to surmise that there are great reservoirs below that are fed by bituminous currents, coming from the center of the earth—or, in other words, he thinks that there have been and are still taking place eruptions of bitumen, the same as there have been trachytic, metalliferous, sulphurous, salinous, and other eruptions. Consequently, petroleum would be derived from the heart of the earth, not from its external strata.

When petroleum is met with in ground of recent formation, as in Galicia, its presence is due to the cleaving of menilitic slate, between the layers of which it is always to be found at a depth of from 30 to 55 yards. In all these wells which have been made with the pick-axe, the oil is found in a state of stagnation. The wells must be cleared either by means of buckets or pumps. It is well known that in America spring wells have been reached when once the wells were cleared, and oftentimes at great depths below the wells after the latter had been dressed up.

In Galicia sandstone forms the base and the foundation, so to speak, of the cistern that holds the petroleum in a state of stagnation. This rock being impervious, it is obvious that piercings should not be made at hazard. But by studying the ground and making the opening between two layers of sandstone, lime may be reached, and a position analogous to that of the American explorers attained, so that there will be a better chance for finding spring wells.

However, even in confining their ambition to the working of the mineral oils contained in the basins of the Carpathian formation, the population of the old world will still find a vast field to devote their energies to; but it is very material, to prevent disappointment and obtain the best result with the smallest sacrifice of capital, to be always guided by the light of pure science. Sound theory has this great advantage, that it may always be applied directly to a well defined practical object. As early as 1863, Mons. de Chancourtois Superintending Mining Engineer, submitted to the Paris Academy of Science his views, purely theoretical, on the use of the pentagonal net in searches for bituminous strata. Since then the strata discovered in Galicia have ranged themselves in a line from the Oder to the Danube, as one of the chief elements of the net. In the opinion of the writer, searches pushed in this direction are almost sure to succeed without leading to aberrations.

MAGNESIUM LIGHT.—Experiments have been made at Birmingham, Eng., to try the effect of the magnesium light when attached to a balloon in the air. The experiments were striking in effect, the light thrown forth being very brilliant, and illuminating the streets, houses, and crowds of people with a distinctness resembling day.

MINING.

SILVER—WHENCE AND HOW OBTAINED.

We are supplied with silver from two great sources—from true silver ores, and from ores of other metals which are more or less argentiferous. In the first case, the silver is the object of the miner's search, whilst in the latter the silver is a by-product, of less value than the mineral with which it is associated. In nature, however, these two classes are not distinct, for they pass from one into the other by imperceptible gradations—still, practically, in the eyes of the miner and metallurgist, though not in those of the mineralogist, there exists a wide difference, which will become more apparent in the following descriptions of the practical methods of extracting silver from its ores, or from what are termed argentiferous minerals, as those ores of copper and lead which contain a small quantity of silver, but in which the value of the lead or copper exceeds that of the silver. In England we have no mines of any importance yielding true silver ores, and yet we send a great deal of silver into the market as the production of our mines, all of which is derived from argentiferous lead and copper ores. In Mexico, Chili, and Peru, on the other hand, the greater amount of silver obtained is from silver ores proper. The extraction of silver from a true silver ore is far easier than its extraction from an argentiferous mineral, in which it is necessary not only to separate the silver, but also to keep uninjuree the base metal with which it is admixed—and if it were not that the supplies of silver ores are daily diminishing, there would not now be so much attention paid to argentiferous minerals. The great silver districts of Chanarcillo, in Chili, and of Cerro de Pasco, in Peru, will probably never again yield such supplies of this precious metal as formerly, simply because the mines are to a great extent exhausted.—This remark applies also to our European silver mines; but how far Mexico, under a well organised and peaceful Government, may be capable of supplying us with an increasing quantity of silver it is difficult to surmise—it may, however, bo estimated that her capacity to do so is great, if circumstance give the opportunity. Still, when we take into account that she is still harassed by war, and consider that however successful her conquerors may be, it will be probably years before the Mexicans will become so far reconciled to their new political existence as to devote proper attention to the natural resources of the country, we must not expect a large supply from her mines, and since, as has been stated, our other resources are becoming exhausted, it may be surmised that the present short supply of silver will not be soon relieved, and that it will be necessary in future to pay greater attention than heretofore to argentiferous ores. Now, as in England we have little to do with the metallurgical treatment of silver ores, since such are treated and the metal extracted therefrom generally in those countries in which they are found, it will be here more interesting to devote attention to the extraction of silver from argentiferous ores rather than to the treatment of true silver ores. At the same time, a short sketch of the nature and character of the more common ores of silver, as also of the modes of treating them, will add interest to the subject, and assist in the explanation of the more approved methods of treating argentiferous minerals.

Metallic silver is not uncommonly found in Nature. It melts at a lower temperature than either copper or gold, and has, when melted, the curious property of absorbing oxygen from the air, which it, however, again gives up on cooling. It is the escape of this oxygen which causes that spitting which accompanies the solidifying of pure silver. This property is a characteristic of pure silver alone, for if there be one or two per cent. of copper alloyed with the silver it never spits on cooling.

The only two ores of silver of any commercial importance are the sulphuret of silver, and that class of ores known as ruby silver, and which may be a combination of silver with arsenic or antimony. Sulphuret of silver, when pure, contains about 86 per cent. of

silver, and is the chief ore of Mexico, Peru, and Hungary. Ruby silver, when pure, contains about 60 per cent. of silver, and is the chief silver ore of Saxony and of Chanarcillo, in Chili. Besides these, there are several less important ores of silver, as the chloride and bromide, but they are not common in Nature, and are, therefore, unimportant commercially. Of argentiferous ores the number is very great, and it is impossible here to describe them in detail; but it may be stated that they are, for the most part, combinations of silver with either lead, copper, arsenic, or antimony.

The methods by which silver is separated from its ores, and from argentiferous minerals, are several. Of those for treating silver ores proper, and in which it is desired to collect the silver alone, the principal are—the Mexican method of amalgamation, in patios, the Freiberg method of amalgamation, in barrels; and the Chilian method of fusion. Of those methods of separating silver from argentiferous minerals, the chief are—Augustin's process, Zervogel's process, and the numerous devices for desilverising lead ores, including Patinson's process, and the liquation process for separating silver from copper by means of lead. In the following will be found a description of each of these processes, as practised in the different localities where they are in use.

The Mexican method of amalgamation in patios is a very ancient one, having been discovered by a Mexican called Medina, in 1557. By what means it was first found out history does not tell us, but the manner in which it is now practised in Mexico is pretty similar to the manner as when first discovered, and from it has certainly sprung all our present methods of amalgamating silver ores. The ore to be treated in Mexico is an antimonial sulphuret of silver, mixed with bisulphide of iron, &c., and an ore which does not require to be roasted. The operation commences with a rough stamping of the ore, under stamps similar to those in our Cornish tin mines. The coarse sand produced in this stamping is transferred to the grinding mill, where it is reduced to the state of an impalpable powder.—This grinding mill is composed of a circular enclosure paved with some hard stone, and surrounded with a water tight boarding. In the centre of the space stands an upright beam, resting on a pivot; and fixed to this beam are long arms, and from these arms stones of porphyry are attached, resting on the base of the enclosure. Now, water being generally scarce, and steam unknown, the mills are worked by mules, which, walking round the outer circumference of the enclosure, draw the long arms to which the stones are attached. In this way the sand is reduced to an extreme state of fineness, water being added to assist the trituration.—When sufficiently ground the liquid mass is baled into large slime tanks, where the magistral, or salt, mixed with sulphide of iron, is added. The perfect admixture of the mass is effected by the treading of mules, and after this mercury is slowly added, the whole mass being well trodden by the mules, and thoroughly turned by laborers, between each addition, assays being made as to the progress of the amalgamation continually. After a time, the sulphide of silver will be found to have become decomposed, and the metallic silver set free, and alloyed with the mercury. It takes some weeks to effect this decomposition, and it must not be attempted too rapidly, or a certain amount of both mercury and silver will be lost. Well, the manager being satisfied that the whole of the silver has been absorbed by the mercury, he washes the mud in vats, and collecting the amalgam by the simple assistance of its greater specific gravity, subjects it then to pressure, and so squeezes out the excess of mercury.—The remaining mass, which will be a definite amalgam is subjected to heat, when the mercury is expelled, the metallic silver remaining behind. The loss of silver in the above process is enormous, and is even as much as from 30 to 40 per cent. of the silver contained in the ore. The amount of salt required in the process is about 130 lbs. for every ton of ore, and of mercury about 16 lbs. per ton of ore. The time required for the process will be from 10 to 15 days in the summer, and from 20 to 25 days in the winter. The rationale of the process is, that neither sulphide of silver alone, nor sulphide of silver when mixed with salt—i. e., chloride of sodium—and exposed to the air, will undergo any change; but when the sulphide of iron is present in such an exposed mass, decomposition sets in, and sulphate of iron with chloride of silver is formed, besides other bodies. If now metallic mercury be brought into contact with this chloride of silver, it will decompose it, and the mercury and silver will form an amalgam.

Sulphide of silver is more readily reduced by mercury than is the chloride of silver, but the effect cannot be produced in the Mexican amalgamation process. In many, in fact in most, of the Mexican silver ores, there is some quantity of gold, and where it is sufficient to be worth extracting, its separation is effected in the grinding mill by the addition of amalgam. This amalgam, it is found, will pick up the gold more readily than will pure mercury; and, curiously enough, if the silver is separated from the ore, and the gold remains present until the later stages, they will combine, and form an alloy which cannot be made to combine with the mercury, and is, therefore, lost.—*London Mining Journal*,

GAS.

THE MANUFACTURE OF COKE FROM SMALL SLACK.

The existence of immense quantities of fine coal slack in the South Staffordshire and other mining districts, in a state almost, if not quite, commercially valueless, is a fact well known to those acquainted with the coal and iron trades of this country. The fact that most of this slack, which has hitherto been considered waste, possesses all the chemical properties of the coals from which it is derived, has also been for some years forcing itself upon the attention of those interested and stimulating their efforts to recombine it as a fuel suitable for smelting and other purposes. The extensive use of coke in iron smelting, and the advantages accruing therefrom, show that the most obvious way of utilising this slack is by converting it into coke, which would also be the way of giving it the greatest possible value. The difficulties in the way of coking the Staffordshire slack arise from the fact that, although possessing the valuable properties for which Staffordshire coal is noted, it does not possess sufficient bituminous matter to cause it to cake or bind in the process of coking. The most successful method of coking the Staffordshire slack, is found to be by mixing with it a certain portion of bitumen, in the shape of Welsh or other bituminous slack. The greatest difficulty at present experienced is with respect to the ovens, as in those hitherto in use the heat developed in the process of manufacture is not applied with an effect or uniformity sufficient for the thorough fusion of a thick mass of slack, and the production of good hard coke. The charges are found to be caked only in layers at the top and bottom, the interior of the charge being imperfectly fused and waste.

It is with a view of remedying this defect in the process that the ovens patented by Messrs. Hicklin and Pardoe have been designed. The principle upon which they are constructed is that of causing the flame and gases from each oven, in a group, to enter into a common system of flues passing over and under every oven in the series, thereby causing a thorough intermixture of the gases, the development of intense heat, and the application of the same in a more uniform and effective manner than hitherto, the coking chambers being, as it were, enveloped in fire. It is found that the ovens will thoroughly fuse and convert into best hard coke thick charges of Staffordshire slack, with a less proportion of bitumen than is used in any other ovens, and without waste. The charges are so thoroughly fused that they are drawn en masse, the doors being as wide as the ovens. Any one or more of the ovens in a series can be drawn and re-charged without interfering with the others, and the charge is immediately ignited by the heat of the contiguous ovens and upper and lower flues, and in its turn contributes to the general effect.—The perfect combustion of the gases (as shown by the absence of black smoke from the chimneys) developes an intense heat, which after expending itself upon a long group of ovens, is still sufficiently powerful to be applied to useful purposes, such as raising steam for working engines, and for heating and drying purposes. —*London Mining Journal.*

DESULPHURISING COAL AND COKE.

An invention, the object of which is principally to render the coal and coke available as fuel, and secondly in some cases to utilise the sulphur, has been provisionally specified by our old correspondent, Mr. Christopher Binks. When the sulphur in the coal exists in the form of iron pyrites, he employs one or other of these methods:

Firstly, he grinds the impure coal, reduced to powder in water—he then passes atmospheric air, either of ordinary temperature or heated, through the mixture to agitate it; the whole is then left to settle, the pyrites by its superior specific gravity falling to the bottom. Mr. Binks employs an agitating and settling apparatus, so constructed that the deposited pyrites can be flushed or carried off from the bottom, leaving the coal either still suspended in the water or lying in a deposited stratum above the pyrites, or otherwise so constructed that the suspended coal, or, when it has been deposited, the stratum of coal, can be washed off from the deposited pyrites. This operation of alternately agitating the impure coal pulp by currents of air, and leaving the pulp to stand till its heavier constituents separate by subsidence, he repeats as often as necessary (when one such operation is not sufficient), till the whole or greater portion of the pyrites is thus mechanically separated from the coal.

The second method brings into action the aid of certain chemical agencies, to be used conjointly with the mechanical appliances mentioned. He exposes the pulverised impure coal mixed with water to the action of atmospheric air so applied and continued as to oxydise all or a portion of the pyrites mixed with the coal, and because of such oxydation, to convert the previously insoluble bisulphuret of iron into soluble sulphate of iron and free sulphuric acid, which products are capable of being separated from the residual coal by washing or lixiviation. In this operation he prolongs the aerating and agitating action obtained by passing atmospheric air at ordinary temperatures into and through the impure coal pulp, till the oxidation of the pyrites (or of such a portion of it as it may be desired oxydised) be completed; but he prefers in place of applying the air at its ordinary atmospheric temperatures to employ heated air, or air mixed with ordinary steam or superheated steam, in order to accelerate the natural oxydising action of air and moisture on the pyrites. The products of this oxidation, consisting chiefly of photo-sulphate of iron and free sulphuric acid, are then removed by washing or lixiviation, and the previously impure coal is thus left either completely or partially desulphurised, and any unoxydised portion of pyrites can be removed by the mechanical action of subsidence.

By a third method Mr. Binks oxydises the pyrites by exposing the coal in heaps to the natural action of the air. He prefers to aid the natural oxydising action of atmospheric air and moisture on the iron pyrites in the coal by the application of artificial heat to the heaps or beds of impure coal, and for this purpose he throws heated air into the sheds, either by currents passing over the surface of the coal or by means of flues constructed below the floors, and conveying heated air beneath or through the beds, or conveying thereto a mixture of heated air and steam. The sulphur compounds so produced are then separated from the coal by washing them out, or by lixiviation, by any convenient arrangements. These compounds are of themselves valuable products, but can be further utilised in the manufacture of other products. The washed and desulphurised coal can be air dried or kiln dried, or in its wet and pasty condition be used as fuel, or for the manu-

facture of coke or of gas, and in most kinds of metallurgical and manufacturing operations. He desulphurises coke by applying acidulated water to convert the salts of iron from the insoluble to a soluble state.—*London Mining Journal.*

A GREAT NATURAL CURIOSITY.

The Jacksonville, Oregon, *Sentinel* describes a remarkable natural curiosity, known as the Great Sunken Lake, and situated in the Cascade Mountains, about seventy-five miles northeast from Jacksonville. This lake rivals the famous valley of Sinbad the Sailor. It is thought to average 2,000 feet down to the water all round. The walls are almost perpendicular, running down into the water and leaving no beach. The depth of the water is unknown, and its surface is smooth and unruffled, as it lies so far below the surface of the mountain that the currents of air do not affect it. Its length is estimated at twelve miles, and its width at ten. There is an Island in its centre, having trees upon it. No living man has ever been able, nor probably ever will be, to reach the water's edge. It lies silent, still and mysterious in the bosom of the "everlasting hills," like a huge well scooped out by the hands of the giant geni of the mountains, in the unknown ages gone by, and around it the primeval forests watch and ward are keeping.

The visiting party fired a rifle several times into the water, at an angle of forty-five degrees, and were able to note several seconds of time from the report of the gun until the ball struck the water. Such seems incredible but is vouched for by some of our most reliable citizens. The lake is certainly a most remarkable curiosity.

The breaking out of the cholera, which is now raging in Egypt, is owing to the pernicious vapors from Mount Araphat since the fetes of the Courban Bairam. Thousands of sheep are sacrificed during the celebration of these ceremonies. The sultan Abdul-Medjid had founded an endowment of 40,000 piastres, to be spent annually for the intrement of the remains and offal of the sacrificed beasts, which created so fearful an amount of malaria. On this last occasion it appears that the 40,000 piastres have been duly paid to the contractor for this business, who has quietly pocketed the money and left the putrid mass of flesh to engender disease and destruction over the world.

A Conglomerate Snake.—The latest snake story is told, in good faith, by the Springfield (Mass.) *Republican*, of a reptile recently found at Lee. It was nearly four feet in length, about the size of a man's finger, and shaped like a whip-lash; and on close examination the whole body was found to be composed of small worms about half an inch in length, with large black head and semi transparent body. On separating them into fragments they would immediately reform into the snake shape and crawl slowly off. One or two other similar snakes have recently been seen in that vicinity. It is to be hoped that they will remain there.

Horses Feeding one Another.—M. de Bousanelle, captain of cavalry, in the regiment of Beauvillers, relates in his Military Observations, "That an old horse of his company, that was very fine and full of mettle, had his teeth so worn that he could not chew his hay and corn; and that he was fed for two months, and would have been so, had he been kept, by two horses on each side of him, that eat in the same manger; that these two horses drew hay from the same rack, which they chewed and afterwards threw before him; they did the same with the oats, which they ground very small, and also put before him. This," added he, "was observed and witnessed by a whole company of cavalry officers and men."

A GREAT AQUEDUCT IN FRANCE.

The conveyance of the waters of the river Dhuis to Paris ranks amongst the most important public works of its class, and, being just completed, a short account of the undertaking will not be uninteresting. The object is the increase in the supply of the amount of water for the consumption of Paris, and especially that of the higher levels of the city. The aqueduct of the Dhuis, or Dhuys, commences at Pargny, in the Aisne, and traverses the departments of the Seine-et-Marne, Seine-et-Oise, and Seine, its total length being about 135 kilometres, or upwards of eighty English miles. The whole is constructed in solid masonry, with a fall of about seven inches in the mile, with the exception of about nine or ten miles, where the waters are carried through valleys by means of cast-iron siphon pipes, 55in. in diameter, and having an average inclination of rather more than 13in. to the mile. The stone aqueduct lies undrground throughout about six miles of its course, four of its principal tunnels being from eight hundred to upwards of two thousand yards in length. Four of the siphons are from a thousand to nearly five thousand yards long. The aqueduct was commenced in June, 1863, and completed last month, and the total cost, including indemnities to proprietors of land, is said to have amounted to between £600,000 and £700,000. On a recent occasion the waters of the Dhuis arrived at the entrance to the great reservoirs of Menilmontant, and in a few days, when the aqueduct and siphons are completely cleansed by allowing the water to pass directly through them into the sewers, the reservoirs will be filled and the service commenced. The Dhuis aquiduct is calculated to furnish about 40,000 cubic meters of water in twenty-four hours, and that of the Marne, with other supplies brought to Paris, about four times that quantity, or 20,000 cubic meters in all per day. Somh idea of the magnitude of these works may be formed from the fact that the stopcocks or valves which close the main supply pipes at their junction with the reservoir weigh more than four tuns each. The pipes themselves are more than 39in. in diameter, and the valve or stopcock consists of a disk of cast-iron, which is set in the direction of the length of the pipe, or transversely, according as the water is to be turned in or off.—*Society of Arts' Jouanal.*

A NEW RAILWAY AXLE-BOX.

A new railway axle-box, in which water is used instead of greese or oil, is in use in the north of England. It is thus described:—On the axle, which, as well as the sides of the box, receives the thinnest possible coating of grease when the parts are fitted up, rests a socket, made of gun-metal, greased in the same manner, and provided with a groove lengthwise. At the end, towards the nave of the wheel, a kind of shad is attached to the socket, bent in the form of a horse-shoe, and running in a groove in the axle, to prevent the water from being ejected out of the box at that side of the bearing. The box is then placed over the socket and an iron disc is fastened on the fore end of the axle; on this disc, and at the top of the box, there rests a small metal spout in the form of an inverted ⅃, which is kept in a vertical position by means of the upright branch of the ⅃ being guided in a groove at the top of the box, which is fastened up by two plates at the back and the front, made water-tight by means of india-rubber washers, &c. The water is then poured in through the orifice of a cup attached to the box outside, and communicating with the inside; the level of the water in the box not standing quite as high as the lowest point of the axle. As soon as the carriage is put in motion, the disc, of course, moves along with it, and, as it touches nearly the bottom of the box, it carries up the water, by means of the centrifngal force, to the top of the box, where it is caught by the spout ⅃, and forced down into the socket, falls through the groove of the latter on the axle, lubricates it, falls to the bottom of the box, is caught up again by the disc; and this action of the disc being continuous, the lubrication is, of course, equally constant, and perfect in the extreme, on account of the absolute fluidity of the water. The lubrication increases in the same ratio as the velocity is augmented, and consequently the danger of heating the axles is entirely avoided.

The traffic receipts of railways in the United Kingdom amounted for the week ending the 7th of October, on 12,384 miles, to 754,264 lbs.; and for the corresponding week of last year, on 11,925 miles, to 696,282 lbs., showing an increase of 359 miles, and of 57,982 lbs.

PHARAOH'S SERPENTS.

Mr, C. H. Wood writes to the London Pharmaceutical Journal;

"A very curious toy is now being sold in Paris under the name of Pharaoh's Serpent. As this toy really constitutes an interesting chemical experiment, perhaps an account may prove interesting to your readers. It consists of a little cone of tin foil containing a white powder, about an inch in height, and resembling a pastile. This cone is to be lighted at its apex, when there immediately begins issuing from it a thick serpent like coil, which continues twisting and increasing in length to an almost incredible extent. The quantity of matter thus produced is truly marvellous, especially as the coil which so exudes is solid, and may be handled, although, of conrse, it is extremely light, and somewhat fragile. Having a little of the white powder with which the cones are filled placed at my disposal by a friend, I submitted it to analysis, and found to consist of sulphocyanide of mercury. The salt when heated to a temperature below redness undergoes decomposition, swelling or growing in size in a most remarkable manner, and producing a mixture of mellon (a compound of carbon and nitrogen) with a little sulphide of mercury. The resulting mass often assumes a most fantastic shape, and is sufficiently coherent to retain its form. It presents a yellow color on its exterior, but is black within. The serpent shape of course results from the salt being burnt in a cone of tin foil. Both the mercurious and mercuric sulphocyanide decompose in the same manner—but the mercuric salt, containing more sulphocyanogen, seems capable of furnishing a larger quantity of mellon, and is the one used in the French serpents. A solution of penitrate of mercuric sulphocyanide may be easily so prepared. It is best to use the mecurial solution as strong as possible, and to keep it in excess throughout the precipitation. Solution of perchloride of mercury is not so easily precipitated as the penitrate, probably owing to the solubility of the mercuric sulphocyanide in the chlorides. Perhaps I may be excused for adding that sulphocyanide of ammonium, suitable for the above purpose, may be very easily and economically prepared as follows:

One volume of bisulphide of carbon, four volumes of liq. ammon. fort., and four volumes of methylated spirit are put into a large bottle, and the mixture frequently shaken. In the course of one or two hours the sulphide of carbon will have entirely dissolved in the ammoniacal liquid, forming a deep red solution. When this result is attained, the liquid is boiled until the red color disappears and is replaced by light yellow. The solution is then evaporated at a very gentle heat—about 80 or 90 degrees F.—until it crystallises, or just to dryness. The product is sulphocyanide of ammonium, sufficiently pure for the above purpose. One recrystallisation from alcohol will render it quite white. One ounce of bisulphide of carbon yields, by this process, exactly one ounce of sulphocyanide of ammonium."

Another New Gunpowder.—Near Potsdam, in Prussia, gunpowder is being manufactured from wood on something like the gun cotton principle. It is now some years since we first heard of the conversion of sawdust into an explosive by means of acids on the gun cottou principle—but Capt. Schultz of Potsdam, appears to have carried out the invention into a practical manufacture. By machinery he cross-cuts beech and other timber into very thin veneers, which are very easily crumbled into a coarse grained powder or saw-dust, which is then exposed to the action of acids, probably in much the same way that cotton is to form gun cotton. The grains are thus reduced in size, and rendered explosive when dried, without yielding either smoke or smell in the combustion, but giving a brilliant light suitable for pyrotechnic displays.

IMPORTANT NOTICE.

To Advertisers.—Our paper offers a superior medium as an advertising agent, to all those who manufacture or sell machinery or appliances of any kind for Gas, Mining, Water, Sewerage, the production or purification of Oils, &c. &c., not so much on account of a wide-spread circulation, as from the fact that it goes directly to the hands of those who are constantly using and requiring machines and improvements for these branches, and who look through our columns for information where to procure them. The class of people who read our paper not only peruse our pages of reading matter, but read the advertisements as well, for the reason that they are directly interested in all things pertaining to their business. We therefore ask, with confidence that we can do them justice, all parties having machinery or improvements of any kind for either of the objects to which our paper is devoted, to send in their advertisements and avail themselves of these advantages. It will be observed that our tems for advertisers are very reasonable.

WATER SUPPLY OF PARIS.

Previous to the annexation of the suburbs, Paris received 147,000,000 litres of water daily from the Canal de l'Oureq, the steam pumps at Challiot and the bridges of Austerlitz, the aqueduct of Arcueil, the artesian well of Grenelle, and the northern springs at Belville and Pres St. Gervais. Since then Paris, enjoying the hydraulic establishments which supplied the annexed suburbs, has had its provision increased by 25,000,000 litres daily, derived from the water works at the bridge Ivy. Auteuil, Neuilly, Clichy, St. Ounn, and the Port-a-l'Anglais, all which represent a total of 172,000,000 litres daily. Formerly there was an eighth waterwork at Clichy, but that was removed on the construction of the main sewer. The Dhuys will bring an addition of 40,000,000 litres, at least, to those 172,000,000 litres, and the water drawn from St. Maur will produce exactly the same quantity, so that Paris is about to possess a supply of 222,000,000 litres of water for the daily use of the inhabitants. Should any necessity arise for it, recourse can be had to another supply from a spring which exists in the valleys of the Somme and the Sonde in Champagne. It is not intended, as has been erroneously asserted, to bring water from the rivers Somme and Sonde to Paris, but only to draw it from the springs which it is expected will produce 60,000,000 litres daily These waters will be drawn from a distance of 150 miles and will enter Paris by the quarries of Pantin, and be received in a reservoir to be constructed at the hills of St. Chaumont, above the circular railway.

Subsidence of the Earth's Crust.—The commune of Buonanotte in France, is hourly threatened with utter destruction. Five manufactories have already been overthrown, and sixty-four more are threatened with immediate ruin. The inhabitants have fled in the greatest terror to the neighboring villages. The cause of the disaster is a sudden and violent depression of the soil, which is at the present time accounted for by one or two reasons—either the fall of an immense mass of earth in the west of the district, or yielding of the roof of an extensive subterreanean cavern. But in reality nothing certain is yet known as to the cause of this most deplorable event. A number of civil engineers have hastened to the spot, and prompt measures are in course of adoption to prevent still greater disaster.

Even the Hairs of your Heads are Numbered. To number the hairs of the head has been in all ages accounted as impossible a feat as to count the sands of the seashore. The astonishing labor has, however, been gone through by a German professor, who thus tabularzies the result of his examination of four heads of hair: Blonde (number of hairs) 140,400; brown, 109,450; black, 102,962; red, 88,740. The heads of hair were found to be nearly equal in weight, and the deficiency in the number of hairs in the black, brown and red colors was fully counterbalanced by a corresponding increase of bulk in the individual fibers. The average weight of a woman's head of hair is about fourteen ounces.

HOT AIR ENGINE.

Mons. Burdin & Bourget have presented for the opinion of the Academy of Science of France, a plan of hot-air engine, from which they believe an economy of at least one-half the fuel may be obtained, and which they desire to construct and experiment upon at the expense of the Government. The plan has simplicity at least. "Let there be an ordinary furnace, such as is used for steam engine boilers, the products of combustion of which escape into the chimney, after descending along an inclined plane. Let the atmospheric air be first compressed to two atmospheres in small parallel tubes lodged in the flue, the air entering at the lowest point, and consequently rising."

Motive Power.—A curious invention has been provisionally specified by Mr. E. S. Jones, ship owner, of Liverpool, according to which he proposes to compress air into suitable chambers, conveniently stored in various parts of the ship. The compression is effeeted whilst the ship is in port, or at any other suitable time, in order that it may be available for use when required in cases of emergency.

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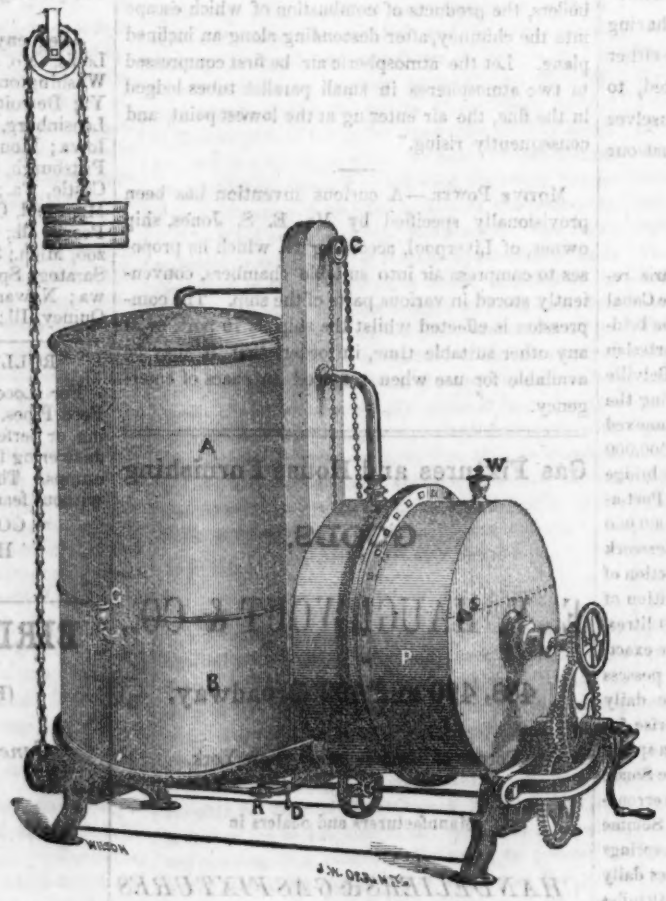

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HARTMAN & LAIST,

Office No. 71 Main street, Cincinnati.—Chemical Works on Providence st, and Miami Canal, near Findlay st.

CERTIFICATE.

Office Louisville Gas Co., Louisville, June 28, 1865.

This is to certify, that the Louisville Gas Co. have used for about two years, the Glycerine prepared by Messrs. Hartman & Laist of Cincinnati, in their Wet Meters, and have in all instances found it to give most perfect satisfaction. Prior to the use of the above Glycerin, we had employed that manufactured by other parties, and we consider H. & L.'s superior to any we used.

J. LAWRENCE SMITH, President.

Office Cincinnati Gas Light and Coke Co., July 7, 1865.

This will certify, that Messrs. Hartman & Laist of Cincinnati, furnished this Company with Glycerin for Wet Meters some two years since. It has proved very satisfactory, having resisted the action of frost during two winters and evaporating not more than six per cent. per annum, as guaranteed by them. The standard being, for density, 15 deg Beaume's scale. They were the first to introduce it practically to this Company. H. J. MILLER, President.

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☞ We shall have twenty or thirty vols. of our last year's issue bound, which we will furnish to subscribers at $3 each, or non-subscribers at $4.

☞ Our subscribers would confer a favor upon us by remitting *checks, or Post Office Money orders*, as we are frequent losers by money sent by mail.

NEW PATENT IRON DOORS.—Among the patents issued recently in England, is one for iron doors, the invention of Mr. Joseph T. Harris. These doors are intended as a substitute for wood, and can be produced at almost the same cost. When fixed and painted it will be difficult to distinguish them from any kind of wooden doors, as they will be precisely the same in appearance, and will open and shut with equal facility. They are especially adapted for dwelling houses, offices, and public buildings, and, indeed for every purpose for which wooden doors are now used, their great merit being their extra security, lightness, and durability, in addition to which they can be made perfectly fireproof, and are not liable to shrink, as is the case with wood.

By experiments which have been made with Gale's so-called non-explosive gunpowder, it has been found that simple shaking or handling will separate the particles of glass and gunpowder, thus rendering the powder again explosive.

The Oil excitement in California is on the increase, and prospecting is being briskly pushed forward. Large esults are calculated upon.

WATER AND NOXIOUS VAPORS.

Messrs. Editors;

I do not know whether the matter reprobated in the accompanying article has any local interest with you—it is of general interest wherever the evil exists. Your circulation will bring the subject to the notice of the parties with whom the remedy rests. And as revealing the nuisance should be followed by its speedy removal, you will be entitled to the thanks of the travelling public for any assistance you can render towards the consummation so devoutly to be wished. Respectfully, &c., A.

There are some scientific truths that at times become of vital importance, and if not recognised, or known, and not heeded, may imperil health, or life itself. Among these we may place the fact that water will absorb in large quantity most noxious gases, particularly those most injurious to human health. As the quantity absorbed is much greater as the temperature of the water is lower, it follows that ice water will absorb such offensive matters most abundantly; that the gasos liberated during animal decomposition and from excrementitious matters of animal origin may be, and often have been, the cause of disease, is another dangerous truth equally certain. Water that has once become infected by exposure to such contaminating agencies could hardly ever again be rendered fit for culinary or drinking purposes. Though pure to the eye it would always be powerful to extend the ravages of epidemics like the cholera now threatening our country. It would be incredible to suppose that any one convinced of these truths would, intentionally, place the water cooler intended to supply his family and friends with water for daily drink in the water closet of his dwelling. Still more incredible if the water closet, instead of being the cleanly apartment of a well regulated household, should be polluted by everything vile and disgusting. And yet this is daily done by sundry railroad corporations, who through ignorance or carelessness, have been betrayed into this gross violation of the laws of hygiene. The railroad car may be fitted up with the most elaborate care for the convenience of travellers by day or night, yet if wanting in a fitting supply of clean water for drinking, it is deficient in a most important item for comfort. The builders and the buyers of such cars seem to be restricted to the one idea, to economise space—and to make room for one more seat that will hold two more passengers, they have agreed to stow away the water cooler in a corner of the water closet, with the spigot projecting through the partition. Here the public are enabled to help themselves to a glass of ice water, and enjoy the draught, provided they are blissfully ignorant of all its antecedents.—The condition of the water closets on our railroad cars is too well known to need description. The water cooler with its ice cold fluid and closely fitting cover, is surrounded by an atmosphere abundantly supplied with gaseous exhalations of the most repulsive character—and the water charged with these gases is swallowed by the most fastidious—even those who are too delicate to use the common glass, will fill their silver mugs and swallow the vile fluid with an apparent relish. Will not the travelling public insist on the proper remedy for this great nuisance. A.

A Dutch company, formed at La Hayc, has just purchased six gas works belonging to the General Society of Credit in Spain; and the shares of the new company are to be issued by the Bank of Antwerp. These establishments are in full working order at Valladolid, Xeres, Alicante, Carthagena, Burgos, and Pampeluna.

The Neapolitan journals announce that, in a short time, a very interesting hydraulic operation is to be carried on at Avezzano, by which an outlet will be given to the waters of the Lake Fucino, so that it can be drained, and the land rendered available for agricultural purposes. The flow will take place by a magnificent aqueduct, called the Emissary of Claudius, about four kilometres long. This important structure formerly served to drain the lake; but on its falling into a state of ruin, the water again took possession of the bed of the lake. The restoration of the aqueduct has been accomplished by a Neapolitan company, of which Prince Torlonia is the principal shareholder.

PETROLEUM REVIEW.

3.—The market is inactive and prices are nominal at 32c. for Crude, 50 to 52c. for Refined in dond, and 70 to 71c. for Refined free.

4.—The market is dull, and prices are nominal at 32c. for Crude; 52c. for Refined in bond, and 70c. for do. free.

6.—The demand has been fair, and the market a shade firmer, sales of Crude at 32 cts. Refined in bond, 52 to 54 cts. and do. Free 70 to 72. cts.

7.—There has been only a moderate inquiry for Crude during the past two or three days, owing to the scarcity of vessels to load for Europe, prices were weak and at the close heavy at 31½ to 32c. Refined in bond is scarce, in demand and firm, closing at 52 to 54c. Free oil is quiet at 70 to 72c. At Philadelphia there were twelve vessels loading for Europe.

8.—The market is very dull, and prices are nominal we quote Crude at 31½ cts. Refined in bond, 52 to 54 cts. and do. Free at 70 to 73 cts.

9.—Crude is dull and heavy at 31½ to 32 cts. Refined in bond is firm at 52½ to 54 cts. Refined, free, is dull at 70 to 72 cts.

10.—Receipts to-day, 3,731 bbls.; the market is heavy and lower; we quote Crude at 32c.; Refined in bond, 52½ to 53., and do free, 71 to 73c.

11.—The market for Crude is dull and heavy at 31½ to 32 cts. Refined in bond is firm at 52½ to 54 cts. Refined free is inactive at 70 to 72 cts.

13.—The market is moderately active and firm at 32½ to 33c. for Crude; 53 to 55c. for Refined in bond, the latter rate for White, 71 to 73c. for do. free.

14.—The market is quiet, but prices are without essential change. We quote crude at 31½ to 32 cts. Refined in bond at 52 to 54 cts. and do. Free at 70 to 71 cts.

15.—Crude has been in moderate demand and steady at 32 to 33c. Refined is firm and in fair demand at 52 to 55c., the latter rate for white, and 70 to 72 for free.

STEEL AND CAST IRON.

A process for the production of steel directly from the ore has been proposed by Mr. G. Hand Smith, of Philadelphia, in the Franklin Institute. Pure oxide of iron, such as the magnetic oxide, for example, is crushed, washed, and packed in layers alternating with charcoal, in the ordinary cementing furnaces; after heating, a porous mass is obtained which may then be rolled into plates. Mr. Fleury also described at the institute, a process of manufacturing steel analogous to that of Bessemer, in which the decarbonisation of the cast-iron was effected by introducing into it while melted pulverised oxide, whose oxygen served to combine with and remove the excess of carbon. He also gave an account of a process for increasing the strength of cast-iron by the addition of an alloy of zinc, lead, and tin, in the proportion of about seven per cent. This process has been patented in the United States.

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Lamp Posts—Brooklyn Pattern.

☞A large stock of the usual sizes of Round Columns kept on hand.

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To take charge of a large bituminous coal property, now mining three hundred tons of coal per day, with facilities for increasing the production to one thousand tons per day—one thoroughly acquainted with bituminous coal mining and capable of directing and taking the full supervision of such an establishment—must be a good accountant and correspondent, and understand the business in all its branches—to such a one, who must come well recommended, a lucrative position can be given. Address, with name, residence and references, stating salary expected and where last employed, L. H. S., box 456 Post Office, New York.

☞London Mining Journal, please copy.

NEW YORK MINING EXCHANGE.

NEW YORK, Nov, 15, 1865.

	Bid.	Asked		Bid.	Asked
Copper Stock.			***Gold Stock.***		
Aktee	7		Benton	1	1⅛
Bedford	1	1	Consol'd Gregory		23⅝
Boston	4⅛	5	Corydon	—	3
Caledonia, A. P.	10	12	Gunnel	3⅛	4⅜
Canada	3¼	4	Great Western	—	8
Carp Lake	8	5	Hope	—	9
Central	—	—	Isaac's Harbor	⅜	⅝
Columbian	—	24	Manhattan	—	9
Copper Falls		—	Mariposa	44	44¼
Clifton	—	$1	Montana	⅜	1
Dacotah	—	5⅛	New York	2⅜	3
Derby	⅜	1⅜	N. Y. & Nova Scotia	⅝	1¼
Douglass	—	—	Quartz Hill	9¼	10
Evergreen	18¾	20	Quicksilver M'g Co	81	82
Flint Steel River	12	13⅛	Rocky Mountain	—	10⅜
Frue	2¾	5	Smith & Parmelee	7	12
Grand Portage	—	—			
Hancock	12⅜	14	***Coal Stocks.***		
Hamilton	—	6	American	98	100
Hilton	5	6	Ashburton	—	25
Hudson	1	2	Central	62	65
Huron	32	33	Cumberland	61	62
Indiana	8¾	9¼	Del. & Hud. Canal	206	208
Isle Royale			*Hampshire & Balt.	104	110
Keweenaw	—	6	Pennsylvania	213	215
Knowlton	7	10			
Lafayette	1	2	***Lead Stocks.***		
Manhattan	—	—	Bucks County	⅝	⅞
Mendota	—	—	Clute	1¾	1⅞
Merrimac	4¾	5¼	Erie	—	20
Minnesota	33	37	Macomb	3¾	5
New York, A. P.	2	3¼	Piancentia Bay	1¾	1⅞
N. J. Consolidated	4	4⅜	Sussex	⅝	¾
Norwich	—	6	Wallkill	3¾	6
Ogima	5	6¾			
Ontonagon	3	4⅛	***Iron Stocks.***		
Penn	—	11⅜	Copake	8	10
Providence	1¾		French Creek	⅝	1
Quincy	96¾		Teal Lake	4¾	6
Reliance	1⅛				
Rockland	12⅜		***Miscellaneous.***		
Superior	8⅜		Rutland Marble	17	20
Sharon Consolidated	—				

* *Ex. div.*

CAMERON COAL.

The Cameron Coal Company are now prepared to receive orders for the delivery of their

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At Elizabethport and other points. It is remarkably free from Sulphur, and suitable for the purposes of Gas Companies, Locomotives, Steam Engines, Iron Manufacturers, and other parties requiring a very superior fuel.

For terms, apply at the office of the Company, Empire Buildings, No. 71 Broadway, Room 33, New York City.

Experimental Trial of Cameron Coal Company's Coal, from "Mount Hope" Vein,

Made at the Philadelphia Gas Works, March 20th, 1865, Charges, 100 lbs. each.

Pounds of Coal carbonized	3,600
Cubic feet of Gas made	16,285
" " per lb. Coal carbonized	4 52·100
Coke made, in pounds	2,430
" in bushels	63
Tar made, in gallons	22
Illuminating power, 5 feet Batwing	14 44·100 Candles.

No. 84 Pine Street, New York, April 5, 1865.

George Warren, Esq., President Cameron Coal Co.:

Dear Sir—The analysis of the Coal I received from you, as from your "Mount Hope" vein, results as follows:

Volatile matter	26.00	per cent.
Carbon (of Coke)	69.40	"
Ash	4.60	" —100.00

The volatile matter consists of crude oil, ammoniacal water, and gas. The crude liquor product amounted to 14 gallons per ton; the illuminating Gas, 4,522 cubic feet per 1,000 lbs. coal. The Coal weighs 65 lbs. per bushel. The Coal is remarkably free from sulphur, and the Gas of excellent quality.

Yours, very truly,

(Signed,) A. K. & S. C. EATON, CHEMISTS.

Manhattan Gas Light Co., New York, April 24, 1865.

Mr. George Warren, President Cameron Coal Co.:

Dear Sir—The result of the examination of the Coal from the "Mount Hope" vein is as follows:

One ton (2,240 lbs.) yielded 9,500 cubic feet of 13 75·100 candle Gas, and 40 bushels of coke, weighing 1,550 lbs. The Coke has a good appearance, and burns very well, with but little hard clinker. Had the Coal been fresh mined, the result would have been better.

Analysis of the Coal.

Volatile matter	29.00	pr. ct.
Fixed carbon	67.20	"
Ash	3.80	" —100,00

Analysis of the Gas.

Olifiant Gas, hydro carbon vapors	4.75 pr. ct.
Carbonic oxide	5.75

Yours very respectfully,

(Signed) JOS. A. SABBATON, ENGINEER.

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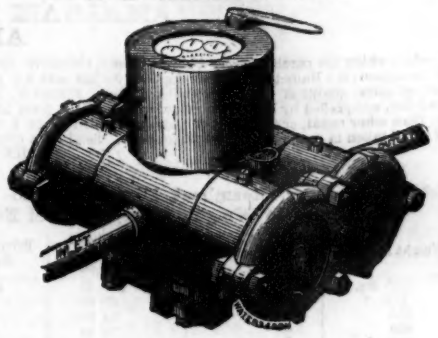

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with such ease and certainty of motion, as to offer no appreciable obstructions to the flow of water in the pipes to which it is connected, as it runs and registers upon three inches head, or when delivering the smallest stream. These qualities, with its low cost, have caused its extensive adoption by corporations and individuals, in many of our largest cities.

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Weight of Bells.	Diameter.	Price of Bells without Hangings.	Price of Patent Hangings.	Price of Bell and Hangings complete.
225 lbs.	26 inches.	$56 00	$15 00	$71 00
275 "	28	69 00	18 00	87 00
375	31	94 00	22 00	116 00
450	34	112 00	25 00	137 00
600	02	150 00	30 00	180 00
750	39	188 00	35 00	225 00
1,000	44	250 00	42 00	292 00
1,200	48	300 00	45 00	345 00
1,400	50	350 00	50 00	400 00
1,600	52	400 00	54 00	454 00
1,800	55	450 00	60 00	510 00
2,000	58	500 00	62 00	562 00
2,500	60	625 00	72 00	697 00
3,000	63	750 00	85 00	835 00
3,500	66	875 00	87 00	962 00
4,000	69	1,000 00	100 00	1,100 00
4,500	72	1,125 00	113 00	1,238 00
5,000	75	1,250 00	125 00	1,375 00

List of Prices, Weights, and Sizes of Farm, Hotel, Steamboat, School-house, Shop, and Factory Bell.

These Bells are fitted with Yoke, Standard's Crank and Bolt, complete for use.

Weight of Bell and Hangings.	Diameter.	Cost of Bell and Hangings complete.
15 lbs.	7 inches.	$3 75
20	8½	5 00
35	10	8 75
50	12	12 50
75	14	18 75
100	15	25 00
150	20	37 50
200	22	50 00
250	24	62 50

Larger Sizes made to Order at 25 cents per pound.

Guarantee.—All Bells sold at the above prices WARRANTED against breakage by fair ringing, for TWELVE MONTHS from time of purchasing. Should one fail, a new bell will be given by returning the broken one.

Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York.

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It consists of seventy-two parts Oxide of Iron, and twenty-eight parts Cement Lime Stone in the one hundred pounds.

It has much more body than red or white lead. It is warranted perfectly water and fire-proof and to withstand a greater heat on metals, without scaling, than any other paint in use.

It is a perfect cover for all kinds of iron, tin, or wood-work, out-houses, and canvas coverings. revents and arrests the corrosion of metals, and is not affected by the action of salt, gases, acids ammonia.

It hardens under water, as has been fully demonstrated by its application to gas-holders, by many f the largest gas companies in the United States, which companies having thoroughly tested its operties as herein claimed, pronounce in its favor over any other paints in the market, even though ld at double its price.

As a coating for patterns of iron or wood, when mixed with shellac, it is much superior to beeswax, oil, or shellac alone, as has been proven at the large founderies in the country.

For patching boilers and making joints, it is considered superior to red lead, or any other preparation.

For cleaning metals it takes the place of crocus, ouge, and emery, being better and cheaper.

This Paint requires no more oil than dry lead or zinc, and much less than the ordinary mineral paints. It is free from any waste, and possesses a spreading and covering power unequaled.

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☞ A liberal discount made to parties purchasing by the ton.

A Barrel or Ton will be forwarded to any gas companies desirous of testing its qualities, for which there will be no charge if it does not give entire satisfaction as being the cheapest and most durable of all other Paints in the market.

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THE MACKENZIE PATENT GAS EXHAUSTER

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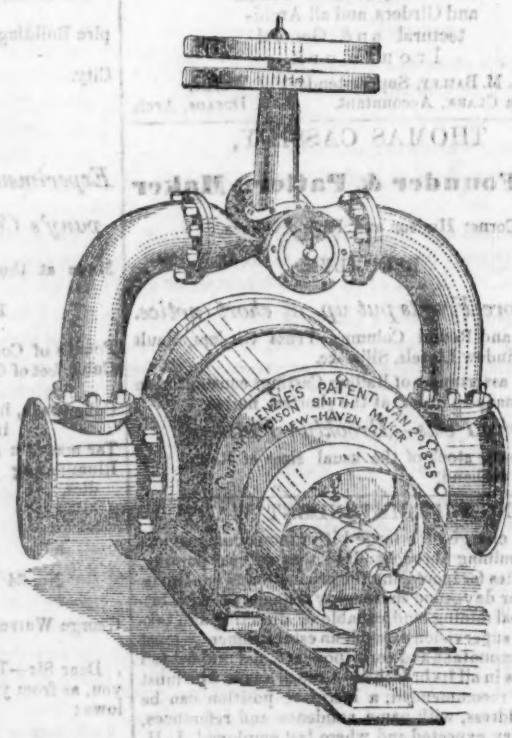

They are made to pass from 4,000 to 150,000 cubic feet of gas per hour; will increase the tion and illuminating power of the gas, and add very much to the durability of the retorts, e clay or iron. The Compensator obviates entirely the necessity of water-joints, is compact, dur cleanly, not liable to get out of order, self-acting, quiet, and certain in its operation.

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UNITED REPUBLIC PET. CO.
74 Broadway. [$2,500,000.]
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UNITED PETROLEUM FARMS CO.
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VIRGINIA & OHIO PETROLEUM CO.
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A. F. Ball, Pres. F. A. Miller, Sc.

Great Improvement
IN
Sewing Machines.
EMPIRE
SHUTTLE MACHINE!

Patented February 14th, 1860.

Salesroom, 536 Broadway.

This Machine is constructed on entirely new principles of mechanism, possessing many rare and valuable improvements, having been examined by the most profound experts, and pronounced to be SIMPLICITY and PERFECTION COMBINED.

It has a straight needle, perpendicular action, makes the LOCK or SHUTTLE STITCH, which will NEITHER RIP nor RAVEL, and is alike on both sides; performs perfect sewing on every description of material, from Leather o the finest Nansook Muslin, with cotton, linen, or silk thread, from the coarsest to the finest numbert.

Having neither CAM nor COG WHEEL, and the least possible friction, it runs as smooth as glass, and is

Emphatically a Noiseless Machine!

PRICE OF MACHINES,
COMPLETE:

No. 1, Family Machine, with Hemmer, Feller, Gauge, Braider, & Corder, complete. - - - $60
No. 2. Small Manufacturing, with Extension Table, $75
No. 3. Large Manufacturing, with Extension Table, $85
No 3. Large Manufacturing, for Leather, with Rolling Foot and Oil Cup, 100

One-half hour's instructions is sufficient to enable any person to work this Machine to their entire satisfaction.

Agents Wanted in all Towns in the United States, where Agents are not already established. Also, for Cuba, Mexico, Central and South America, to whom a liberal discount will be given Terms, invariably CASH on delivery.

T. J. McARTHUR & CO.,
536 Broadway.

WILCOX & GIBBS
SEWING MACHINE

It is entirely noiseless.
A patented device prevents it being turned backward.
The needle cannot be set wrong.
It received the Gold Medal of the American stitute in 1868.
InSend for a circular containing full information, notices from the press, testimonials from those using the machine, &c.

JAMES WILLCOX,
Manufacturer, 508 Broadway, New York
Principal Offices:
NEW YORK—508 Broadway.
BOSTON—32 Washington street.
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BRUSSELS—12 Rue Croisade.
SYDNEY, AUSTRALIA—292 Pitt street

GAS-BURNERS.

T. G. ARNOLD,
MANUFACTURER OF
GAS-BURNERS
And Importer of SCOTCH TIPS,
224 and 226 West 21st street,
formerly No. 447 BROOME St., New York.
Mercury Cups, Portable Sockets, Burner Pillars, Burner Pliers, &c., &c.

C. GEFRORER,
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For Lighting and Heating Purposes.
GAS HEATING AND COOKING APPARATUS; FITTERS' PROVING APPARATUS, &c.
No. 111 South Eighth St., Philadelphia.

WOODEN PURIFYING TRAYS
PATENT
Conically Slotted Solid Wood Sieves
FOR GAS PURIFIERS.

The Conically Slotted Solid Wood Tray or sieve was patented 21st October, 1862, and all persons are cautioned against purchasing them of any other person except the subscriber. The following companies are now using these trays.

Manhattan, New York,
Metropolitan,
New York
Albany,
Troy
Brooklyn, L.
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Baltimore Md.
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And numerous others

Orders eceived by mail or otherwise.
JOHN L CHEESMAN.
147 Avenue C New York City

WEST'S IMPROVED PUMPS, the most Simple, Durable, and Powerful, and the Cheapest in use.
J. D. WEST & CO.,
No. 40 Cortland street,

JOSEPH LENNIG,
1615, 1617, and 1619 Francis St.,
Above Ridge Avenue, Philadelphia, Pa.,
MANUFACTURER OF
WET & DRY GAS METERS,
STATION, SHOW, & EXPERIMENTAL METERS,
Photometers, Pressure Registers, Indicators, and Gauges, Governors, Meter Provers, Centre Seals, Fluid Gauges, &c.
GAS APPARATUS
Of the most reliable and approved construction manufactured and on hand at the
UNION GAS METER WORKS.

D. PARRISH, Jr.,
GAS ENGINEER
And Contractor for Coal or Oil Gas-Works.
Estimates given for Gas-Works, Gas-Holders, or any Gas Apparatus.
205 1-2 Walnut st., Philadelphia, Pa.
Box 1956, Post Office.

To Manufacturers of Petroleum Gas.

For sale, Parrish's Patent Gas and Air Mixer, adapted to all works using Petroleum or other oils, by which rich Petroleum Gas is mixed, after it leaves the holder, with a proper proportion of air, giving it the greatest illuminating power, without smoke, through any burners. The apparatus being attached to the outlet pipe, requires no alteration of the works.

Apply at the Gas-Works of St. Nicholas Hotel, No. 63 Mercer st., N. Y., where one can be seen in operation; or address D. Parrish, Jr., St. Nicholas Hotel, New York city, or No. 1416 Arch street, Philadelphia.

TO GAS COMPANIES.

THE UNDERSIGNED DESIRES TO undertake the supervision of several small Gas-works, to visit and examine them as often as may be necessary; to obtain and inspect their coal, castings, fire-brick, and other materials; and to manage their general business in such a manner that they shall be under such supervision as is now attainable in large works, at much increased cost. Also, to advise as general Consulting Engineer and expert in practical chemistry.

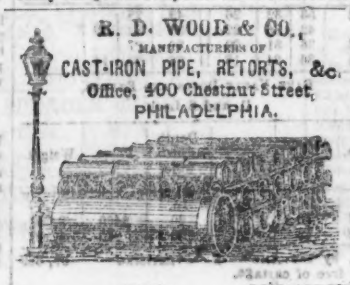
CHAS. M. CRESSON,
Late Asst. Engineer of the Philadelphia Gas-works
417 Walnut st., Philadelphia.

THE AUBIN
GAS-WORKS COMPANY,
Of Albany, N. Y.,

Now contract their works to make 10,000 feet of good Gas from 2,000 pounds of *hard* wood and 40 gallons of kerosene tar, *before payment can be demanded;* and the charcoal is worth the cost of the wood.

Many Village Gas Companies can be referred to.

R. D. WOOD & CO.,
MANUFACTURERS OF
CAST-IRON PIPE, RETORTS, &c.
Office, 400 Chestnut Street,
PHILADELPHIA.



Carrington & Co.'s
GENERAL
PURCHASING AGENCY,
In Connection with all the Expresses,
No. 30 Broadway,
NEW YORK.

Established 1854.

Purchases to order ANY article wanted from New York, (or from Europe,) for ladies' or gentlemen's use or wear,—comfort or luxury—from a cameo to a cashmere—a sea ring to a steam-engine.

Goods purchased at current City prices, and forwarded by Express, or as directed.

Commission, Five Per Cent.

Remittances, with orders, can be made by Express if preferred, as all Express Agents will take orders, receipt for and forward funds, and see to return of Goods.

SPECIAL CIRCULAR.

The Adams Express Company, appreciating the need of a capable medium connecting with the various Express Lines, through which personal and other orders for goods from this city, can be satisfactorily supplied, do recognize CARRINGTON & CO. GENERAL PURCHASING AGENCY as such a medium for filling orders for every description of goods wanted from New York, and commend it to the attention of the public, and of our general and local agents, recommending our agents to extend to it all reasonable aid, by facilitating the distribution of its cards and circulars, and making known the advantages it affords.

ADAMS EXPRESS CO.
By W. B. DINSMORE, Prest.
NEW YORK, June, 1864.

We cheerfully concur in the above recommendation of the Adams Express Company.
AMERICAN EXPRESS COMPANY,
By HENRY WELLS, Prest.
UNITED STATES EXPRESS COMPANY,
By D. N. BARNEY, Prest.
WELLS, FARGO & CO.,
NATIONAL EXPRESS COMPANY,
By J. A. ALLEN
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HOPE EXPRESS COMPANY,
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NEW JERSEY EXPRESS COMPANY,
By GEORGE R. DUNN, Sup

The Greatest Improvement yet in the Sewing Machine Art!

A CURIOSITY WORTH SEEING!

Please send for circular with sample of sewing.

These Improved Machines save ONE HUNDRED PER CENT. of thread and silk, and make the LOCK-STITCH alike on both sides.

They require no instruction to operate perfectly, except "the printed directions."

No change in sewing from one kind of goods to another.

And no taking apart to clean or oil.

Our NEW MANUFACTORY is now complete, with all its machinery and tools entirely new, and is already rapidly turning out Machines which for BEAUTY and PERFECTION of FINISH are not surpassed by any manufacture in the world.

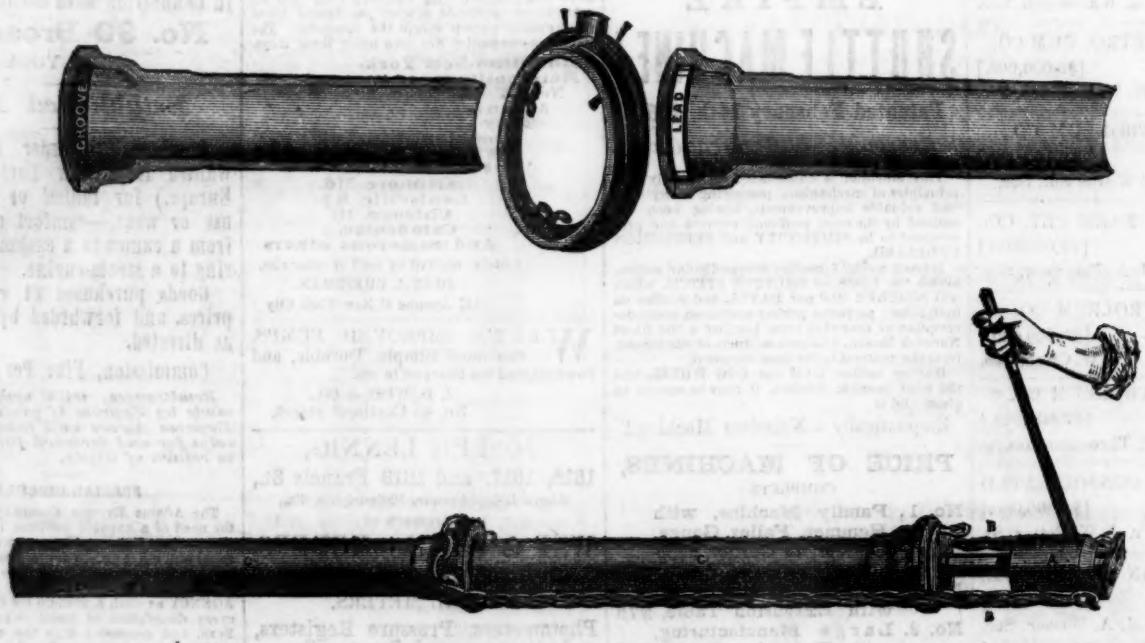
N. B.—Should any Machine prove unsatisfactory, it can be returned and money refunded.

Agents wanted in counties not canvassed by our own agents.

Finkle & Lyon S. M. Co.
[No. 688 BROADWAY, NEW YORK

ROBBINS' PATENT GAS AND WATER JOINT.

The Proprietors of this unrivalled joint are now prepared to introduce it to general use, and to guarantee that, in all respects, it will fulfil perfectly all the requirements of either water, gas, or steam. It is a joint which remains in all situations absolutely tight.
The following illustrations, will give a good idea of the improvement.



For further information, or for prices and terms, which will be very reasonable, apply to

R. C. ROBBINS & CO., No. 218 FULTON STREET, NEW YORK.

L LLIE'S
CELEBRATED
Chilled and Wrought Iron Safes,
WROUGHT IRON FIRE-PROOFS,
LOCKS AND VAULT DOORS.

These Fire-Proofs are manufactured to supply a demand for Security Against Fire, less expensive than my celebrated and superior Chilled and Wrought Iron Burglar and Fire-Proof Safes.
They furnish similar and equal security to the Safes generally manufactured in the different cities, but are SUPERIOR to them in their Fire-Proof qualities and durability, the iron being effectually rotected from rust in any climate, and the Fire-proof not subject to lose its utility by age ' This is an important advantage gained to the purchaser, as Safes often rust out and become worthless in wo or three years.
To substantiate my position, those purchasing these Fire-Proofs are at liberty, by giving me due notice of time and place of trial, to test them by fire with any other Safe of the same size; and should they not prove superior, I will refund the money, or a new Fire-Proof, as the purchaser may decide.

LIST OF SIZES & PRICES OF WROUGHT IRON FIRE-PROOFS

	Outside.			Inside.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
6	40	31	27	31	21	15	$150
5	34	21	26	24	21	14	125
4	31	27	25	22	18	13	110
3	30	24	24	21	15	12	100
2	28	22	23	20	14	13	75
1	24	19	20	17	11	10	50

Sample of Fire-Proof Safe at Office of the Am. Ad. Agency, 389 Broadway, N. Y.

PRICE LIST.
LILLIE'S CELEBRATED CHILLED & WROUGHT IRON SAFES.

BANK, FIRE, AND BURGLAR SAFES.
Folding Doors, D Lock.

	OUTSIDE.			INSIDE.			
No.	Height.	Width.	Depth.	Height.	Width.	Depth.	Price.
	In.	In.	In.	In.	In.	In.	
1	66	50	29	54½	39	18	$950
1½	59	50	26	48	39	15	800
2	53	44	27	42½	33	15	600

MERCANTILE F AND B SAFES.
Folding Doors and Monitor Locks.

3	50	42	27	40	32	16	$500
4	46	42	27	36	32	16	450
4½	38	46	27	28	36	16	450
5	42	38	27	31½	27½	15	350

Single Doors and M. Lock.

6	38	35	26	27½	23½	15	$250
7	34	31	26	24	21	14	200
8	31	28	24	21	18	13	175
9	30	24	24	21	15	12	140
10	26	22	22	19½	18½	12	120
11	24	20	18	17	17	10	100

HOUSE SAFES.

SIDE BOARD	$600
DINING ROOM	350
PANTRY (No. 1)	275
PANTRY (No. 2)	150
DUODECAGON BANK LOCK	100
MONITOR SAFE do.	50
SAFE do.	10

NATIONAL BANK SAFES,
With 2 Inside Burglars and 1 D and 2 M Locks.

	OUTSIDE.			INSIDE.			
No.	Height.			Hei	Width.	Depth.	Price.
	In.			In.	In.	In.	
1	68			55	39	18	$1,200
2	61			48	39	18	1,050
3	57			42½	33	18	900

BANK VAULT BURGLAR SAFES,
With Folding Doors and D Lock.

0	68	56	27	64	48	20	$1,000
0½	61	53	27	55	46	20	800
1	57	47	27	49	40	20	600

BANK VAULT BURGLAR SAFES,
Single Doors and D Lock.

2	55	32	26	49	28		
	42	36	22	38	32	19	
4	36	31	20	32	27		0
5	30	24	18	26	20	14	

BANK VAULT DOORS AND FRAMES,
D and S Lock.

No.	Height clear.	Width clear.	Depth adjustable.	Price.	Weight.
	In.	In.	In.		
1	72	27	20	$400	3,000
2	72	27	20	275	1,500

Orders received and filled at net cash prices, by the AMERICAN ADVERTISING AGENCY, 389 Broadway, New York. All Safes shipped from Troy free of cartage.
Business Depot, E. ALVORD. *Corresponding* OWLER

WEST'S IMPROVED PUMP.
Anti-Freezing, Double-Acting, Forcing, and Lifting

These Pumps have now been in general use a number of years, and give better satisfaction than any other, and are recommended as

THE BEST!

by CAPTAIN ERICSSON and other eminent engineers. We can refer to thousands using them, a guarantee that all will recommend them. They are more simple in construction, and work easie and cost less than all others.

"Our readers will find the double acting, improved pump of J. D. West & Co., one of the best the market. It is very simple, works to a charm, so that any child may use it; throws a stead continuous stream, and does not freeze in the coldest exposures, and is unusually cheap. We ea this knowingly, and give the testimony of our own accord, without the knowledge or request of the proprietor "—*New York Evening Post, July 1st*, 1863.

"J. D. WEST & Co.: We are pleased to state that the Pumps we had of you about a year ago, have been in constant use, twelve hours each day, and raise for the use of our woolen factory, about 130 gallons per minute. They work with but little power, compared with pumps we have used before, and do not get out of repair, and are satisfactory in all respects.
"DUNLAP MANUFACTURING CO."

Solon Robinson to the Farmers' Club.
Jan. 28.

"No farmer who owns a well or cistern can possibly afford to be without an iron pump. It should be a once a suction and force pump—a perfect little fire engine—such a one known as 'West's Improved Pump.' I speak of this Pump because I happen to know it....to be very simple, durable, powerful and cheap, and it don't freeze up, nor get out of order once a year....I know this, and think I may be doing the farmers good by speaking of it....A boy ten years old can work it, and throw a continuous inch-and-a-quarter stream....It can be made to work in deep wells as well as ni shallow ones."

"The undersigned having to use "West's Improved Pumps," cheerfully recommend them as simple, durable, and powerful in raising and throwing water, and for their ease of action, security against frost, and low price, we believe them superior to all others.
"WARREN LELAND, Met. Hotel, N. Y.
"J. W. POMEROY, Yonkers, N. Y.
"JOHN MESSEREAU, N. Y.
"DOMINICK LAWRENCE, Westchester."

From the New York Observer.

"We have had in use for months past one of West's Pumps, which has given us more satisfaction as a force and lifting pump than any we have ever used. It is one of great power, and well adapted for ship's decks, mines, factories, greenhouses, graperies, etc. *The Mining Chronicle and Railway Journal* says: 'It is recommended for its extreme simplicity of construction, great strength, and consequent durability and cheapness of repair. There is no stuffing-box—the pressure being held by a cup packing, like that upon the working-piston, working in a cylinder, fitted for the purpose within the upper air chamber—which we think a great improvement, as stuffing is so liable to be deranged and leak under strong pressure, to say nothing of the loss by friction incident thereto. It has also two air-chambers; thus the action of the valve is cushioned upon both sides by air—preventing water-hammer and vacuum-thump. The valves are very accessible and simply and cheaply repaired. They work much easier than any pump we have ever seen; the 4-inch cylinder being worked by children in wells 100 feet deep, and as they are extremely cheap, as well as simple and strong, we freely recommend them.'"

"CAMBRIDGE MINE, N. C., June 15, 1863.
"J. D. WEST & Co.—Gents: The Pump which I ordered for our mine is received, and put to work in our underlay shaft, which we are sinking. We find that one man will, with ease, lift 50 gallons per minute. We lifted in three and a half hours all the water in the shaft, which measures seven by twelve feet and thirty feet deep, and it was full when we commenced. It answers our expectations in every respect, and our workmen are highly pleased with it. It will do great service with but trifling expense for repairs.
"Yours, respectfully, BURR HIGGINS."

"This may certify, that I have been using, at my manufactory, for the last four years, 'West's Improved Pumps.' I now have in use three of said Pumps, one of which is kept constantly at work, 24 hours of each day (save Sunday, and has been running for the past two years. I pronounce them, unhesitatingly, the best Pumps that have been brought to my notice, having used many others previously. They are simple in their construction, and not easily disarranged.
"N. Y., Oct. 10, 1859. JAS. A. WEBB."

We have plenty more such certificates, but think these are enough. For Pumps, Hose, Pipe, etc., address or call upon

J. D. WEST & CO., 40 Cortlandt st., New York.
Orders may be sent through the AMERICAN ADVERTISING AGENCY, 389 Broadway

EDDY'S

Kerosene Cooking & Heating

STOVES AND RANGES.

THESE COOKING STOVES WILL

☞ *Bake, Boil, Stew, Fry and Roast,*

With the greatest economy and facility, and without heating the room in which they are used. They are perfectly simple, operating like an ordinary Kerosene Lamp with a chimney, and are the only Kerosene Stoves that burn without smoke or odor.

"We have been perfectly astonished to see what a labor-saving, dirt saving and heat-saving institution is EDDY'S PATENT KEROSENE STOVE. Taking the cost of running it, and the result attained, it is the best patent in the market."—*Worcester Daily Spy.*

Our Heating and Cooking Stoves are very convenient and economical, especially where a fire is required but a few hours at a time.

Orders for Stoves may be sent through American Advertising Agency, 389 Broadway, New York.

LESLEY & ELLIOT,

Manufacturers, No. 494 Broadway, New York.

Send for Illustrated Circular. (136

KNITTING MACHINES

FOR

Families and Manufacturers,

☞ *Something New and Invaluable for Family Use.*

We offer the public the simplest, strongest and best Knitting Machine in the world.

It occupies but little space—is portable and can be attached to a stand or table, weighs about 40 lbs.

It will knit a variety of Stitches—the breakage of needles is trifling—the cost of needles is insignificant and the most delicate material can be knit pure and spotless, as the needles are not oiled.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Send for a Circular—Agents wanted.

DALTON KNITTING MACHINE CO.,

137] 537 Broadway, N. Y.

WEED'S

HIGHEST PREMIUM

Shuttle Sewing Machine

Has only to be seen and operated to be Appreciated.

Call and see for yourself before purchasing. Please bring samples of various kinds of thread, (such as is usually found at stores,) and various kinds of fabric, which you know the former most popular Sewing Machines either cannot work at all, or, at best very imperfectly.

SUPERIORITY.

over any other Machine in the market will be seen at a glance.

1st It runs easily and rapidly, and is so constructed as to endure all kinds of hard usage.

2d. No breaking of threads in going over seams.

3d. No imperfect action of the feed at uneven places in the work.

4th. The Weed-stitch catches of itself, and will sew from the finest lace to the heaviest leather, and 200 cotton to coarse linen thread.

5th. The Weed Machine will do beautiful quilting on the bare wadding, without using inner lining; thus leaving it soft as if done by hand.

6th. The variety of fancy work that can be done on the

WEED MACHINE,

with so little trouble, makes it equal, if not superior, to six machines combined; for instance, it Binds, Hems, Tucks and Sews on the band at the same time, and in face, the

WEED NO. 2 MACHINE,

as before stated, is equivalent to a combination of any six ordinary machines.

Orders for Machines may be sent through the American Advertising Agency, 389 Broadway, N. Y.

Below we give a few prices:

No. 2. Oil Black Walnut, Ornamented with Hemmer.	$60,00
No. 2. Oil Black Walnut, Hall Case, Ornamented, with Hemmer.	65,00
No. 3. Extra Oil-Polished Black Walnut, Half Case, Large Table beautifully Ornamented.	75,00

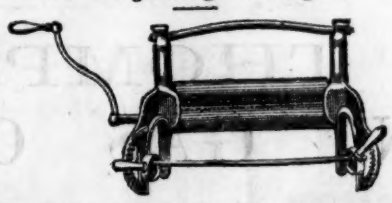
WEED SEWING MACAINE Co.,

136) 506 Broadway, New York.

PUTNAM'S CLOTHES WRINGER.

IT IS THE ONLY RELIABLE

Self-Adjusting Wringer.



No Wood-work to Swell or Split. No Thumbscrews to get out of order. Warranted with or without Cog-wheels.

It took the First Premium at Fifty-seven State and County Fairs in 1863, and nearly double that number in 1864, and is, without an exception, the *best* Wringer ever made. Patented in the United States, England, Canada, and Australia. Agents wanted in every town, and in all parts of the world. Energetic agents can make from $3 to $10 per day.

WHAT EVERYBODY KNOWS, VIZ.:

That Iron well galvanized *will not rust.*

That a *simple* machine is better than a complicated one.

That a Wringer should be *self-adjusting, durable, and efficient.*

That thumb-screws and fastenings cause *delay* and *trouble* to regulate and keep in order.

That wood soaked in water will *swell, shrink,* and *split.*

That wood-bearings for the shaft to run in *will wear out.*

That the Putnam Wringer, with or without cog wheels, will *not tear the clothes.*

That cog-wheel regulators are not essential.

That the Putnam Wringer has *all* the advantages, and *not one* of the disadvantages above named.

That all who have tried it pronounce it the *best* Wringer ever made.

That it will wring a thread or a bed-quilt *without alteration.*

We might fill the paper with testimonials, but insert only a few to convince the skeptical, if such there be; and we say to all, *test* Putnam's Wringer. Test it *thoroughly* with *any* and any others, and if not entirely satisfactory, return it;

PUTNAM MANUFACTURING CO.—*Gentlemen:* I know from practical experience that iron well galvanized with zinc will not oxydize or rust one particle. The Putnam Wringer is as near perfect as possible, and I can cheerfully recommend it to be the best in use. Respectfully yours,

JOHN W. WHEELER, Cleveland, O.

Many years' experience in the galvanizing business enables me to indorse the above statement in *all particulars.*

JOHN C. LEFFERTS, No. 100 Beekman St.

NEW YORK, *January*, 1864.—We have tested Putnam's Clothes Wringer by practical working, and know that it will do. It is cheap; it is simple; it requires no room, whether at work or at rest; a child can operate it; it does its duty thoroughly; it saves time, and it saves wear and tear. We earnestly advise all who have *much* washing to do, with all intelligent persons who have *any*, to buy this Wringer. It will pay for itself in a year at most. HORACE GREELEY.

PRICES—$8, $9, and $10.

Sample Wringers sent, express paid, on receipt of price.

Manufactured and sold, wholesale and retail, by

PUTNAM MANUF'G CO.,

13 PLATT STREET, New York,

BENNINGTON, Vt.,

CLEVELAND O.

WATER AND GAS PIPE.

The Boston Bituminized Pipe Company,

Are now manufacturing and prepared to take orders, for their PATENT PIPE, (from 2 to 12 inches in diamter,) as a substitute for Iron, Copper, Lead, &c., for the conveyance of WATER, GAS, SEWERAGE, &c. &c.

From the testimonials received, and the entire satisfaction it has given those having it in use, we feel warranted in claiming for this pipe over that of any other, the following advantages, viz.:

It is much CHEAPER—has great strength (it having been tested to 500 lbs. to the square inch,) combined with LIGHTNESS, costing less for transportation; the joints are easily made and perfectly tight; it does not expand or contract from different degrees of tempera ture, and is free from *CORROSION* or *CONCRE TIONS* forming; does not impart any taste or injurious properties to water, and as far as anything can be said to be indestructible, we deem this to be.

As a GAS PIPE, we say it has no superior. The Lowell Gas Light Co., purchased and laid some of this Pipe last year, and have likewise subjected samples to a test of four month's duration in their dry lime purifiers, with the most satisfactory results, in fact establishing beyond a doubt, its perfect adaptation to the wants and requirements of Gas Companies, specimens of which, together with the statement of O. E. Cushing, Esq., Agent Lowell Gas Light Co., who made these experiments. I shall be pleased to show, and give all other needed information, by applying in person, or by letter, to JOHN L. WEBSTER, Treas.,

Boston Bituminized Pipe Co.,

127] No. 2 Pearl st. House, Boston.

AMBROSE SPENCER GILCHRIST.

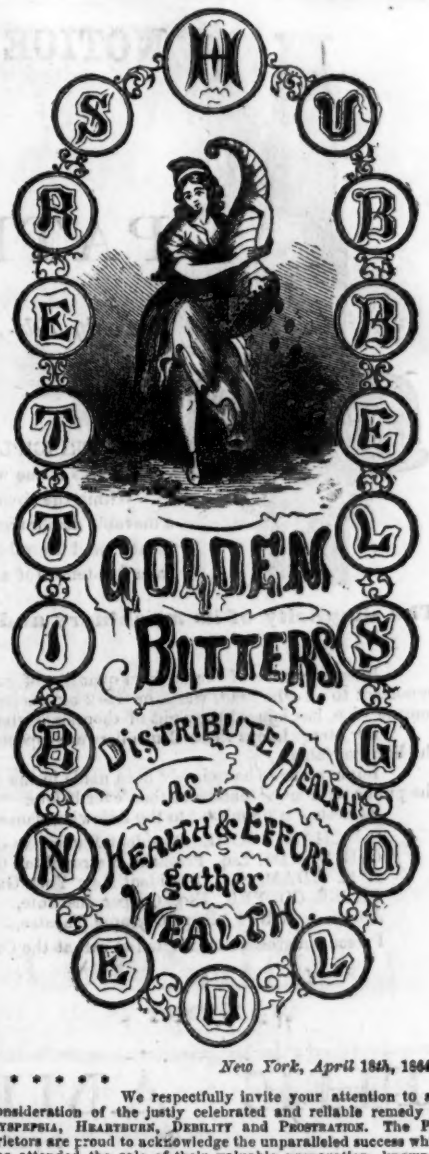
(LATE CAPT. U. S. V.,)

CIVIL, MINING

AND ARCHITECTURAL ENGINEER,

No. 200 BROADWAY, Office 12.

New York.



New York, April 18th, 1864.

* * * * * *

We respectfully invite your attention to and consideration of the justly celebrated and reliable remedy for DYSPEPSIA, HEARTBURN, DEBILITY and PROSTRATION. The Proprietors are proud to acknowledge the unparalleled success which has attended the sale of their valuable preparation, known in nearly every portion of the civilized world as the

"GOLDEN BITTERS."

We risk nothing when we term them a *valuable preparation,* for they are one of the few articles of the present day which are not a humbug; and we are willing and able to satisfy any person or persons who will call upon us, that the celebrated "GOLDEN BITTERS" are a genuine *bona-fide hygienic* article. It is the wish of the proprietors that the virtue of the article be tested before condemning. A decision of their merits by any one who has tried them, is worth a million of purchased bogus testimonials.

For Creating a Healthy Appetite

they are invaluable, and are unequalled as a TONIC. They are mild in their action, and operate by giving *vigor* and *strength* to the system,—not by any change they produce in the solids, but through the medium of the living principle.

They are Purely Vegetable,

being composed of Gentian Root, Calamus, Sassafras, and many other remedial agents of the Vegetable world, all preserved in Jamaica Rum and Sherry Wine.

As a Beverage,

They are the most *wholesome, invigorating* and *palatable* stimulant ever offered to the public. And the fact of their being prepared chemically and scientifically, precludes the possibility of a bitter, unpleasant taste, common to Bitters generally offered for sale. We especially recommend them to LADIES, and particularly to those suffering from

DEBILITY, WEAKNESS, AND PROSTRATION.

Half a wine glass of these "Bitters" three or four times a day, will produce a remarkable healthy change in persons greatly debilitated.

The "Golden Bitters" have been tried and not found wanting. They are put up in our own *Patent* quart bottles, and for sale by Druggists, Grocers, &c., throughout the world. Each bottle bears a fac-simile of the signature of Hubbel & Co.

GEO. C. HUBBEL & Co., Sole Proprietors

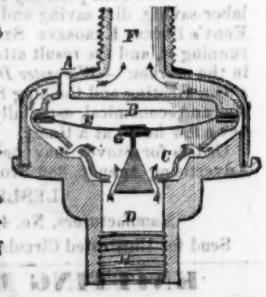
CENTRAL DEPOT, American Exp. Building, New York.

THE GOLDEN BITTERS.—We are not an advocate of stimulants of an alcoholic character; indeed we deprecate this "daily tonic" idea—this "morning toddy" which we see offered in all sorts of shapes as a recuperator, invigorator, revitalizer, &c. As a rule all artificial stimulants are dangerous remedies, and must be taken into the system as you would mercury or arsenic, in very small doses. But we have had an opportunity to try the now well-advertised article known as Hubbel's Golden Bitters, and are frank to say that where the system needs building up, where a stimulant is required to aid nature in restoring a lost appetite and infusing a vigorous action to the debilitated functions, we can recommend these Bitters. Hubbel's Golden Bitters are evidently intended to improve the debilitated human system, rather than to tickle the palate, and are, therefore a harmless and safe remedy o keep in the house.—*New York Weekly Day Book.*

NOTICE TO GAS COMPANIES AND GAS CONSUMERS

THOMPSON'S PATENT GAS CONTROLLER,

The only Self-Acting Gas Controller, Regulator, and Burner Combined which has ever been invented, or known to science.



THE PRINCIPLE UPON WHICH THE THOMPSON'S AUTOMATIC GAS CONTROLLER works is one well known to mechanics, and is simple in its operation.

Within the circumference of a small cylinder below the burner is placed a conical valve attached to a movable diaphragm. The diaphragm rises or falls as the pressure of gas from the pipe is lesser or greater, and the valve acts upon the valve-seat with such regularity of movement that in a difference of from five-tenths of an inch pressure to five inches the variation in flame is hardly perceptible.

The simplicity of its machinery and the nature of the material used in its construction insure its regular action and durability.

In consequence of the uniform quantity of gas which passes the Controller to the burner, there is no waste, and a steady, soft flame is produced, which is important to all who read, write, or work by gas-light. The unsteady flickering blaze which invariably exists when the pressure of gas is beyond the requisition for consumption, has injured the sight of thousands who have been subjected to it.

For street lamps these Controllers are especially valuable, because the pressure varies materially during the night, and in consequence there is a waste of gas, and the light variable.

Improvements have lately been made in the mechanism of the Controller which makes them almost a perfect meter to each burner, and they are now offered to the public with more confidence than ever before.

Reference is permitted to the following named gentlemen—

Col. CHAS. ROOME, President Manhattan Gas Company, N. Y.
C. H. SANDS, Esq., President Metropolitan Gas Company, "
J. H. ADAM, Esq., President New York Gas Company, "
PETER COOPER, Esq., Cooper Institute, "
JOHN A. DUFF, Esq., Olympic Theatre, "
GEO. H. KITCHEN, Inspector of Gas Meters, N. Y
A. L. BOGART, Esq., Gas Engineer.
Col. J. A. SABATTON, Engineer Manhattan Gas Company.
Col. A. J. WHITE, Engineer Metropolitan Gas Company.
J. K. SIMPSON, Esq., Engineer Cooper Institute.

Persons interested are invited to call at the Office, 111 Pearl street, where they can see the operation by pressure guage and test meters

M. L CALLENDAR, Agent
Office, 111 PEARL STREET.

THE AMERICAN METER CO.

Organized under the General Manufacturing Laws of the State of New York.

SAMUEL DOWN, PRESIDENT. HENRY CARTWRIGHT, VICE PRESIDENT. RICHARD MERRIFIELD, SECRETARY AND TREASURER

TRUSTEES.

SAMUEL DOWN, WILLIAM HOPPER, R. H. GRATZ, HENRY CARTWRIGHT, RICHARD MERRIFIELD.
THOMAS C. HOPPER, *Superintendent at Philadelphia.*

This Company is now prepared to furnish WET AND DRY GAS METERS, STATION METERS, GOVERNORS, PRESSURE INDICATORS & REGISTERS, SERVICE and METER COCKS, and all other articles in their line appertaining to the use of Gas-Works.

The combination of Mechanical and Scientific Skill, and the long experience of the several members of the Company, is a sure guarantee of durability, and excellence of workmanship. Orders addressed

AMERICAN METER COMPANY,

512 WEST TWENTY-SECOND STREET, NEW YORK,
ARCH AND TWENTY-SECOND STREETS, PHILADELPHIA,
No 23 WEST STREET, BOSTON will meet with prompt attention.

HARRIS & BROTHER, PRACTICAL GAS METER MANUFACTURERS,

Continue, as heretofore, at their old Establishment, **No. 1117 CHERRY ST., PHILADELPHIA,** to Manufacture

WET AND DRY GAS METERS, and all kinds of GAS APPARATUS, and furnish all articles appertaining to the use of Gas Works. ☞ OUR WORK WARRANTED—Satisfaction Guaranteed. Orders respectfully solicited, and promptly attended to, by

HARRIS & BRO., No. 1117 Cherry st., Phila.

Messrs. Harris & Brother, Philadelphia Gas Works, February 14, 1857.

Dear Sirs—I take great pleasure in stating that we have found your meters to register with entire correctness, and to be generally of very good quality; the number furnished by you to these works is over 5,000.

JOHN C. CRESSON, Engineer.

Office of the Gas Light Company of Augusta, Ga., March 6th, 1858.

This is to certify that having used meters manufactured by Messrs. Harris & Bro., for the last nine years, we do not hesitate to state they have given entire satisfaction in point of workmanship and accuracy of registration; they are surpassed by none, and equalled by few manufactories in the Union; we have used meters made by other establishments, but our preference is in favor of those made by Harris & Bro., of Philadelphia, Pa.

G. S. HOOKER, Superintendent of the Gas Light Company of Augusta, Ga.

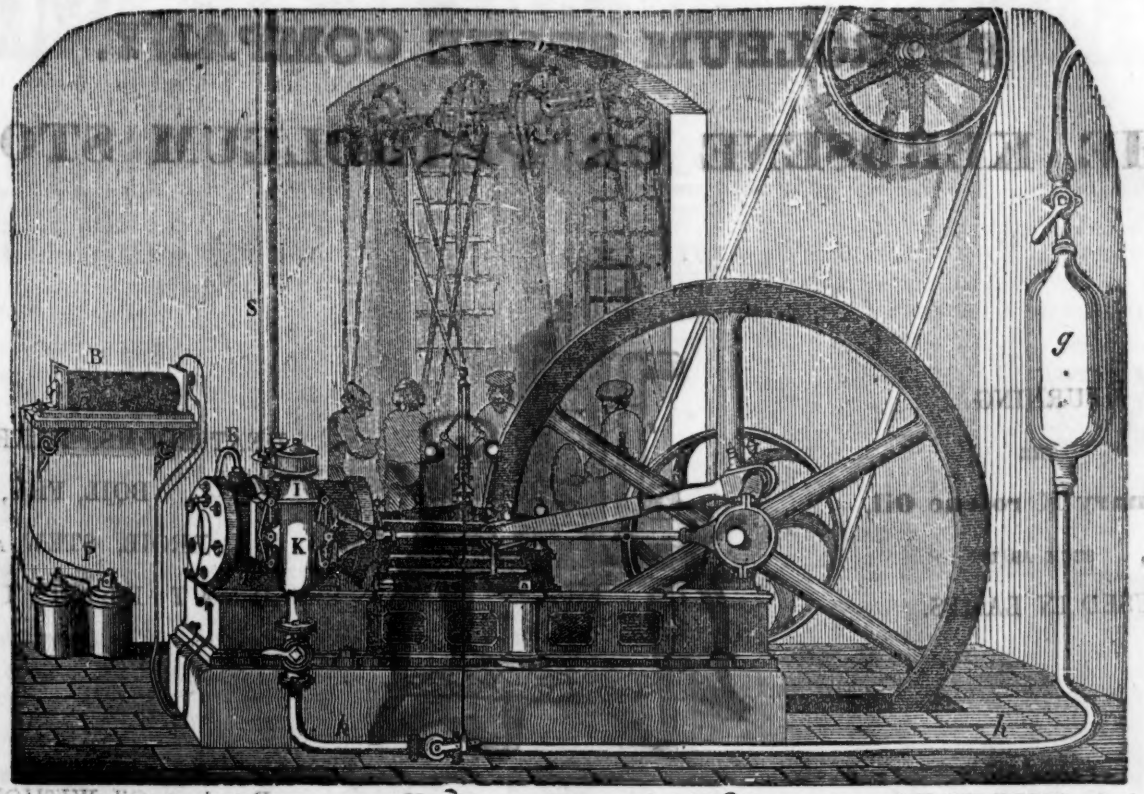
Messrs. Harris & Brother, Philadelphia. Philadelphia, March 4, 1858.

Gentlemen—We take great pleasure in bearing our testimony to the very superior character of the meters we have received from your establishment. We have always found the workmanship all we could desire, while the accuracy and reliability of their measurement have always been satisfactory. We have used meters made by other parties, and none have given as entire satisfaction as those received from you. We are, gentlemen, very truly, yours, BIRKINBINE & MEARS.

Messrs. Harris & Brother. March 14, 1857

Gentlemen—For the last ten years we have used in the Philadelphia Gas Works, meters made in your factory and take pleasure in expressing my opinion to their correctness. On several occasions I have taken your meters apart, and found the materials used in the manufacture of the same to be as fine quality as used in those imported from Europe, or made by any of the manufacturers in the United States.

Respectfully Yours. GEORGE WIEGAND,
Inspector of GasFittings, Philadelphia



MOTEUR—LENOIR.

LENOIR GAS ENGINE.

This is a horizontal engine, in which a piston, by a connecting rod drives a horizontal shaft.

The gas enters by the pipe "h" from the regulating reservoir "g," (made of vulcanized india rubber,) which regulates the feeding and the branches connected with the gas-pipe.

The tube, K, receives the gas conveyed by the pipe "h," and conducts it to the valve, which opens and closes alternately, by means of a rod moved by an eccentric wheel fastened to the end of the shaft.

Two of Bunsen's piles, P, sufficient to produce the electricity are placed at a little distanc from, and in communication with a Ruhmkorff electric apparatus, B. The electric current of this apparatus is conducted by means of insulated wires to the electricity distributor "m," placed on the front of the frame, while the current of electricity and its arrival at the inflammator, inserted at each end of the cylinder, is directed by the movement of the piston-rod, which, by an ingenious combination, impels a small movable slide before the distributor.

The burnt gas, after having performed its functions in the machine, escapes, by means of a valve, through a pipe, S, and the water designed to cool the interior of the cylinder enters through a double passage, by means of a pipe situated near the escape-valve, and goes out by the pipe, E.

A two horse and a half horse Engine are now in practical operation at the Dry Dock Iron Works, No. 435 East Tenth street, near East River, New York, where they are being manufactured, and those interested are invited to call and examine them.

THE LENOIR GAS ENGINE

Requires no Fire and makes no Smoke,

No Noise, no Dirt, and is thoroughly safe.

It is propelled by the expansion of Air, dilated by the combustion of Gas within the cylinder, ignited by the

ELECTRIC SPARK

PETROLEUM STOVE COMPANY.

THE KEROSENE OR PETROLEUM STOVE.

BURNING

THE

Ordinary Kerosene Oil,

SUCH AS IS

USED IN LAMPS.

HEAT ROOMS, BAKE, ROAST,

BOIL, FRY,

BROIL, STEW, AND

HEAT FLAT IRONS.

This is the ONLY STOVE, yet invented, which burns the common Kerosene, or Petroleum Oil, WITHOUT A WICK and is capable of doing all the COOKING, BAKING, WASHING and IRONING of a large family, as quickly as any coal or wood stove—is neat in appearance, and clean, MAKING NO DIRT OR ASHES—requires no room for stowing wood and coal, a light and portable, and may be used in any convenient place in or out of the house, and is guaranteed to be perfectly safe and free from explosion. This Stove must not be confounded with other Stoves offered under the name of Petroleum Stoves, which do not, and cannot, under any circumstances, burn the ordinary Kerosene, or Petroleum Oil, but burn Naptha, an article as dangerous as gunpowder, in the hands of persons unacquainted with its properties.

☞This Stove is now in use in the Refreshment Saloon at the Fair of the American Institute. Also, may be seen in operation at the Office of the Petroleum Stove Co., 171 Broadway, Room 12, where Orders will be received, and State and County rights disposed of on liberal terms.

NATHANIEL FORD, Sec'y. *S. T. McDOUGAL, Pres*

GROVESTEEN & CO.,

PIANO-FORTE MANUFACTURERS.

499 BROADWAY, NEW YORK.

The attention of the public and the trade is invited to our New Scale Seven Octave Rosewood Piano-Fortes, which for volume and purity of one are unrivalled by any hitherto offered in this marked. They contain all the modern improvements, French, grand action, harp pedal, iron frame, over-strung bass, etc., and each instrument being made under the personal supervision of Mr. J. H. Grovesteen, who has had a practical experience of over thirty years in their manufacture, is fully warranted in every particular.

THE "GROVESTEEN PIANO-FORTE"

Received the highest award of merit over all others at the Celebrated World's Fair!

where were exhibited instruments from the best makers of London, Paris, Germany, Philadelphia, Baltimore, Boston, and New York; and also at the American Institute for five successive years, the gold and silver medals from both of which can be seen at our warerooms.

☞By the introduction of impro ements we make a still more perfect Piano-Forte, and by manufacturing largely, with a strictly cash system, are enabled to offer these instruments at a price which will preclude all competition.

PRICES.

No. 1, Seven Octave, round corners, Rosewood Plain Case, $275.
No. 2, Seven Octave, round corners, Rosewood Heavy Moulding, $300
No. 3, Seven Octave, round corners, Rosewood Louis XIV, style $325, a fac-simile of the accompaning cut.

TERMS—NET CASH, IN CURRENT FUNDS. Descriptive Circular sent free.